DOCUMENT RESUME

ED 436 455 SO 031 129

AUTHOR	Lai, Selena; Young, Jocelyn; Mukai, Gary
TITLE	China and the World in 2010: An Introduction to Futures Studies.
INSTITUTION	Stanford Univ., CA. Stanford Program on International and Cross Cultural Education.
PUB DATE	1998-00-00
NOTE	125p.
AVAILABLE FROM	The Asia/Pacific Project/SPICE, Institute for International Studies (IIS), Littlefield Center, Room 14, Stanford University, 300 Lasuen Street, Stanford, CA 94305-5013. Tel: 800-578-1114 (Toll Free).
PUB TYPE	Guides - Classroom - Teacher (052)
EDRS PRICE	EDRS Price MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Area Studies; Case Studies; Foreign Countries; *Futures (of Society); High Schools; Higher Education; *International Relations; Non Western Civilization; Research Tools; Social Studies; *World Affairs
IDENTIFIERS	*China; *Global Issues

ABSTRACT

This curriculum unit aims to introduce students to the study of the future by teaching about some of the tools that futurists use. Through the small group activities in the unit, students will become familiar with and proficient in using the following tools: historical analogy, trend extrapolation, cross-impact matrix, and decision-maker's flowchart. Students will learn how to use these tools as applied to China, but can then be applied to almost any content area. The unit uses China as a case study of the future for a number of reasons: its sheer prominence as an emerging player in the international community calls for a deeper understanding of the country; the study of China embodies the interdisciplinary nature of futures studies itself; and how China's role in the world evolves during the 21st century will be of utmost importance to students' understanding of both domestic issues and international relations. Lesson 1 of this curriculum unit asks students to explore the concept of the future. Lesson 2 encourages students to consider historical analogy, (how studying the past can help in studying the future). Lesson 3 focuses on trend extrapolation from time series data representing population growth in China. Lesson 4 teaches students how to use a cross-impact matrix, a tool often used by futurists to determine how various trends may interact to produce certain outcomes. Lesson 5 introduces students to China's economy by examining the eight regions of China. Each of the five lessons in the guide has specific learning objectives. Contains handouts and transparencies. (BT)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 436 455

China and the World in 2010

An Introduction to Futures Studies

SO 031 129

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY
Gary Mukai
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
2B

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

SPICE
Stanford Program on International and Cross-Cultural Education
A Program of the Institute for International Studies

BEST COPY AVAILABLE

STANFORD PROGRAM ON INTERNATIONAL AND CROSS-CULTURAL EDUCATION

A PROGRAM OF THE INSTITUTE FOR INTERNATIONAL STUDIES

Since 1976 the Stanford Program on International and Cross-Cultural Education (SPICE) has supported efforts to internationalize elementary and secondary school curricula by linking the research and teaching at Stanford University to the schools through the production of high-quality curriculum materials on international and cross-cultural topics. Housed in the Institute for International Studies at Stanford University, SPICE has produced over 90 supplementary curriculum units on Africa, Asia and the Pacific, Europe, Latin America, the global environment, and international political economy.

COLLABORATION WITH UNIVERSITY FACULTY, AND CLASSROOM TEACHERS

SPICE draws upon the diverse faculty and programmatic interests of Stanford University to link knowledge, inquiry, and practice in exemplary curriculum materials. Within the Institute for International Studies alone, SPICE can draw upon the resources of its 15 interdisciplinary research and teaching programs. The curriculum development efforts of SPICE are also closely linked to two state-sponsored staff development projects also housed at Stanford—the California International Studies Project and the California Foreign Language Project. Each of these programs conduct staff development programs for elementary and secondary teachers in eight California regions. Through these cooperative relationships SPICE is uniquely positioned to field-test and disseminate all of its materials.

CRITICAL THINKING AND MULTIPLE PERSPECTIVES

SPICE recognizes its responsibility to present multiple perspectives and enhance critical thinking and decision making skills in subject areas such as geography, economics, the environment, history, science, foreign languages, language arts, and fine and applied arts. SPICE's interdisciplinary approach draws upon simulations and role plays, readers' theaters, lessons involving the visual and performing arts, journal writing exercises, and cooperative group activities.

ACCESS TO THE LEARNING PROCESS FOR ALL STUDENTS

Attention to the unique needs of today's linguistically, ethnically, and socially diverse classrooms is of pressing concern to educators throughout the country. SPICE has made a strong commitment to creating curriculum materials that model effective ways of working with students of all backgrounds. As a result, SPICE is collaborating with the Stanford School of Education to incorporate active learning strategies that increase student access to higher level concepts and full academic participation.

SPICE is a non-profit educational program and receives funding from the Institute for International Studies at Stanford University and several private and government foundations and programs.

Stanford University
SPICE
Quality educational materials since 1976
Stanford Program on International
and Cross-Cultural Education
Institute for International Studies
Littlefield Center, Room 14
Stanford University
Stanford, CA 94305-5013
For further information e-mail us at:
SPICE.SALES@Forsythe.Stanford.Edu
or call 1-800-578-1114

This curriculum unit is printed entirely on recycled paper. At SPICE, we share the concern for preserving the environment. We have adopted a policy of using recycled paper for all of our publications. This commitment reflects the concern of all of our employees—a commitment that is further reinforced through an extensive recycling program at Stanford University.

CHINA AND THE WORLD IN 2010

An Introduction to Futures Studies

Developed by Selena Lai
with contributions from Jocelyn Young and Gary Mukai

The Asia/Pacific Project
Stanford Program on International and Cross-Cultural Education (SPICE)

Copyright © 1998
by the Leland Stanford Junior University Board of Trustees
Permission is given to educators to reproduce handouts for classroom use only.

For further information contact:
The Asia/Pacific Project/SPICE
Institute for International Studies (IIS)
Littlefield Center, Room 14, Stanford University, 300 Lasuen Street,
Stanford, CA 94305-5013
Tel: (800) 578-1114
Fax: (650) 723-6784

ACKNOWLEDGMENTS

The principal author of this curriculum unit is Selena Lai, China Project Associate, SPICE. Contributing authors are Jocelyn Young, former China Project Associate, and Gary Mukai, Asia/Pacific Project Director, SPICE.

We express grateful acknowledgment to the principal advisor of this unit, Jane Boston, former SPICE Director, whose leadership and expertise in pedagogy guided the development of this unit.

We are deeply indebted to the principal investigator for this unit, Professor Michel Oksenberg, Senior Fellow, Asia/Pacific Research Center, Institute for International Studies, Stanford University, for his advice and support.

Special appreciation is extended to Dr. Julian Chang, Associate Director, Asia/Pacific Scholars Program, Stanford Universty, for his superb guidance, generous advice, extensive reviews, and enthusiastic support of this project.

Much gratitude is extended to Dr. Walter Falcon, Director; Nancy Okimoto, Deputy Director; Evelyn Kelsey, Associate Director; Amy Balsom, Assistant Director; and Elizabeth Nichols, Manager of Public Affairs, Institute for International Studies, Stanford University, for their support of SPICE curriculum development and their administrative leadership.

Many people commented and/or field-tested the lessons in this curriculum unit. We owe grateful thanks to the following individuals: Mercy Chen, La Mirada Unified School District, California; Thea Glicksman, Okemos High School, Okemos, Michigan; Mike Malloch, Okemos High School, Okemos, Michigan; Royce Black, Houston, Texas; Professor Jack Miller, Penn State University, Arlington, Pennsylvania; Shayne Klein, Friends' Central School, Wynnewood, Pennsylvania; Patience Berkman, Newton Country Day School, Newton, Massachusetts; Rita Wylie, Parkway West Senior High, Ballwin, Missouri; Kathleen Woods Masalski, Program Coordinator, Five College Center for East Asian Studies, Smith College, Northampton, Massachusetts; Denzel Lai, Los Altos Hills, California; Robert Rusnak, The Jakarta International School, Jakarta, Indonesia; Sara Wyss, Summit Middle School, Fort Wayne, Indiana; Laurie Archer, Sage Valley Junior High, Gillette, Wyoming; Billy Shanks, Todd County Central High, Elkton, Kentucky; Rebecca Payne, Program Coordinator, Asian Educational Media Service, Center for East Asian and Pacific Studies, University of Illinois, Urbana, Illinois; Pearl Stratyner, Staten Island, New York; George A. Grantham, Turkey; Tom Martin, Lowell High School, San Francisco, California; Elizabeth Jamison, Cincinnati, Ohio; and Michael Preston, Center For Global Partnership, The Japan Foundation.

The Decision Maker's Flowchart lesson is based on a lesson called "Regions of China" created by Dr. Michael Chang, former SPICE China Project Coordinator and presently on the faculty of the Asian and Asian American Studies Program at De Anza College, Cupertino, California.

Much appreciation is extended to SPICE staff members Pearl Kim and Greg Francis, for their valuable advice and assistance; and to Lucia Nunez, for her indispensable technical assistance.

The curriculum unit cover and lesson maps were designed and drawn by Richard Sakai of Y Design, San Jose, California. Special appreciation is extended to Virginia Iorio for her editorial work and advice; Dave Sare for technical support; and Patricia Cruz for handling the production of this curriculum unit.

This curriculum unit was made possible through the generous support of Chien Lee, Reuben and Ingrid Hills, and the Stanford East Asia National Resource Center (HEA Title VI). The conceptualization of this unit originated from the China and the World Affairs in 2010 Conference held at Stanford University in April of 1996. The conference was organized by Professor Michel Oksenberg and funded by Reuben and Ingrid Hills.

TABLE OF CONTENTS

unit introduction

CHINA AND THE WORLD IN 2010 1
Rationale and Introduction to Lessons 1
Unit Goals 2
Materials 2
Time and Suggested Sequence of Activities 3
Small Group Roles 3
Subjects 3
Icons 3

lesson one

WHAT IS THE FUTURE? 5
Transparency
    What is a Concept Map? 8

lesson two

HISTORICAL ANALOGY 9
Handouts
    #1: Group 1: The Boxer Rebellion 12
    #2: Group 2: The May Fourth Movement 15
    #3: Group 3: The Cultural Revolution 17
    #4: Group 4: The 1989 Democracy Movement at Tiananmen Square 22
Transparencies
    #1: What is Historical Analogy? 25
    #2: History and the Future 26
Activity Cards
    #1: Group 1: The Boxer Rebellion 27
    #2: Group 2: The May Fourth Movement 28
    #3: Group 3: The Cultural Revolution 29
    #4: Group 4: The 1989 Democracy Movement at Tiananmen Square 30

lesson three

TREND EXTRAPOLATION 31
Activity Information Sheet 35
Population Cards
    Round 1 36
    Round 2 36
    Round 3 37
    Round 4 37

Transparencies

#1: Population Totals in China, 1940-2025 38
#2: What is Trend Extrapolation? 39
#3: Activity: Trend Extrapolation 40

lesson four

CROSS-IMPACT MATRIX 41

Handouts

#1: Group 1: Water Pollution 45
#2: Group 2: Air Pollution 48
#3: Group 3: Population Growth 51
#4: Group 4: Technology 54
#5: Group 5: Economy 57

Activity Cards

#1: Group 1: Water Pollution 60
#2: Group 2: Air Pollution 60
#3: Group 3: Population Growth 61
#4: Group 4: Technology 62
#5: Group 5: Economy 63

Transparencies

#1: What is a Cross-Impact Matrix? 64
#2: Making a Cross-Impact Matrix 65

lesson five

THE DECISION MAKER'S FLOWCHART 67

Resource Cards

#1a: Xinjiang Autonomous Region 72
#1b: Gansu Province 73
#1c: Inner Mongolia Autonomous Region 74
#1d: Ningxia Hui Autonomous Region 75
#1e: Shaanxi Province 76
#2a: Liaoning Province 77
#2b: Jilin Province 78
#2c: Heilongjiang Province 79
#3a: Beijing Municipality 80
#3b: Tianjin Municipality 81
#3c: Hebei Province 82
#3d: Shandong Province 83
#3e: Henan Province 84
#3f: Shanxi Province 85
#3g: Jiangsu Province 86
#4a: Hubei Province 87
#4b: Hunan Province 88
#4c: Anhui Province 89
#4d: Jiangxi Province 90
#4e: Zhejiang Province 91
#4f: Shanghai Municipality 92
#5a: Guangdong Province 93
#5b: Fujian Province 94
#5c: Hong Kong Special Administrative Region 95

#5d: Hainan Province 96
#6a: Yunnan Province 97
#6b: Guizhou Province 98
#6c: Guangxi Zhuang Autonomous Region 99
#7a: Sichuan Province 100
#7b: Chongqing Municipality 101
#8a: Tibet Autonomous Region 102
#8b: Qinghai Province 103

Maps

#1: Cutout Map of China 104
#2: Administrative Map of China 105

Transparencies

#1: What is a Decision Maker's Flowchart? 106
#2: Making the Flowchart 107

Activity Cards

#1: Choosing a Sector for Investment 108
#2: List of Investment Projects 109
#3: The People's Republic of China Investment Contract 110

appendix

REFERENCES 113

Unit Introduction

CHINA AND THE WORLD IN 2010

Rationale and Introduction to Lessons

> "Fascination with the future is an age-old and forgivable indulgence. The future...is, after all, where we will spend the rest of our lives; and our persistent curiosity in this regard is understandable. The focus of all our hopes and fears is in the future, and everything we do today is inevitably affected by our expectations for tomorrow."
> —Olaf Helmer, "The Future of X," *Looking Forward*, p. 17.

As fascinated as many people are with what may happen in the future, we are often unable to say with any certainty what the future holds. However, this unpredictability does not mean that we should not concern ourselves with the future. In fact, students need to learn how to apply critical thinking skills to a rapidly changing society. Preparing students to analyze the future will equip them with the appropriate skills to prepare themselves for that future.

The purpose of *China and the World in 2010* is to introduce students to the study of the future by teaching some of the tools that futurists use. Through small group activities, students will become familiar with and proficient in using the following tools: historical analogy, trend extrapolation, cross-impact matrix, and decision maker's flowchart. Students will learn how to use these tools as applied to China, but these tools can be applied to almost any content area.

The decision to use China as a case study of the future was made for a number of reasons. The sheer prominence of China as an emerging player in the international community requires a deeper understanding of China itself and its relations with other countries both throughout history and in current affairs. And the study of China embodies the interdisciplinary nature of futures studies itself. As the United States and other nations interact with China with increasing frequency, the need to anticipate and analyze change becomes paramount. How China's role in the world evolves during the twenty-first century will be of utmost importance to students' understanding of both domestic issues and international relations.

Lesson One of this curriculum guide asks students to explore the concept of the future. Using a "concept map," students will clarify their view of the future and their definition(s) of the future. Through this exercise, students will gain an appreciation for the concept of "the future," as well as a sense of their individual and collective roles in that future.

unit introduction

Lesson Two encourages students to consider historical analogy, how studying the past can help us study the future. Although there are limits to the extent that history can affect future events, studying historical trends and themes provides a fundamental context for understanding how trends and themes in human existence resurface over a period of time. Using documents from oral histories and personal memoirs, Lesson Two introduces students to four selected time periods in Chinese history—the Boxer Rebellion, the May Fourth Movement, the Cultural Revolution, and the 1989 Democracy Movement at Tiananmen Square—that provide perspectives on the tension between change and continuity in China.

Lesson Three focuses on trend extrapolation from time series data representing population growth in China. Students participate in an activity that uses popcorn kernels to represent the population of China. Through "Population Cards," students will see the effects that government legislation has had on population growth in China. This activity provides a springboard for class discussion of the larger issues of population growth, including the concept of trends and limits.

Lesson Four teaches students how to use a cross-impact matrix, a tool often used by futurists to determine how various trends may interact to produce certain outcomes. Students will be introduced to various issues pertinent to the Chinese environment—air and water pollution, population growth, technology, and the economy. Monitoring trends and analyzing potential effects of decisions are major components of this lesson.

Lesson Five introduces students to China's economy by examining the eight regions of China. Students will learn to use a decision maker's flowchart to visualize and compare alternatives and consequences before making a decision about economic investment in their region.

Unit Goals

Each of the five lessons in this curriculum guide has specific learning objectives listed at the beginning of the lesson. The following reflect larger goals for the curriculum guide as a whole:

In this curriculum guide, students will:

- appreciate the concept of the future and their roles in it
- become familiar with and proficient in using futurists' tools
- study historical, economic, social, political, and environmental issues relevant to contemporary China
- work effectively in small and large groups

Materials

Handouts and primary source documents have been included with each lesson. Permission is given to reproduce these handouts and documents for classroom use only.

Time and Suggested Sequence of Activities

Each of the unit's five lessons can be integrated into your curriculum where it best suits your needs. Each lesson has been designed to stand alone as well as in combination with the other four lessons. However, for the most enhanced learning experience for students, we recommend that you teach the entire unit as a whole. We recommend at least 2-3 class periods for each lesson, except for Lesson One, which can be completed in one period.

Small Group Roles

China and the World in 2010 engages students in many small group activities. Some of the suggested roles and responsibilities for students working in small groups are:

- **Facilitator**: responsible for reading instructions or designating someone in the group to read instructions, for assuring that the group stays on task, and for communicating with the instructor
- **Recorder**: responsible for writing answers to questions, taking notes, etc.
- **Timekeeper**: responsible for keeping track of the time allocated for each activity
- **Materials Manager**: responsible for obtaining and keeping track of materials used by the group
- **Harmonizer**: responsible for the group process—making sure, for example, that no one dominates the discussion and that everyone is participating
- **Reporter**: responsible for organizing group presentations and presenting results of activities to the class

Subjects

- Social studies
- Contemporary issues
- History
- Global/international studies
- Futures studies

Icons

For easier reference the following icons are used throughout the unit:

Notes to the Teacher

Transparency

Individual Activity

Small Group Activity

Classroom Activity

Lesson 1

WHAT IS THE FUTURE?

Organizing Questions

- What is the future?
- Why is studying the future important?
- What are our individual and collective roles in the future?

Introduction

> "The future, of course, is still being made. It is what people can shape and design through their purposeful acts. To act intelligently, people need to know the consequences of their own actions, of others' actions and reactions, and of forces beyond their control. These consequences can only occur in the future. Thus, people try to know not only what is happening, but also what might happen, what could happen, or, under particular conditions, what will happen *in the future*."
>
> —Wendell Bell, "What Do We Mean by Futures Studies?"
> *New Thinking for a New Millennium*, p. 3.

The future may be a new concept for many students and teachers. Even though most classrooms spend much time studying history (the past) and current affairs (the present), historically there has not been a significant emphasis upon studying the future. However, as Bell's quote above suggests, studying the future equips students with the necessary critical thinking skills to determine appropriate decisions and consequences. The past, present, and future are intricately linked—and oftentimes studying one time period can tell us much about another time period.

This opening activity and discussion will introduce students to the concept of the future. Students will explore the concept of the future itself and why studying the future is important. By exploring their own and others' visions of what the word "future" really incorporates, students will gain a sense of their places in the future and how their actions and decisions today can influence the future.

Emphasize to students that even though there are many ways to define the future, and there are many ways to study the future, this curriculum guide is based on the assumption that nobody can predict the future with 100 percent accuracy. The lessons in this unit are based on "forecasting" the future, not "predicting" the future.

The difference between these two words, "forecasting" and "predicting," is subtle but very important. "Forecasting" is making educated guesses about the future based on known facts, evidence, and/or patterns. (Example: Weather forecasters base their forecasts on known weather patterns and probable directions of those patterns in the future.) "Predicting" implies that a person makes a guess—a guess that is not based on solid evidence, knowledge, or consistent patterns.

lesson one

Objectives

knowledge

- to understand the concept of the future
- to make students aware of their own perceptions of the future

attitude

- to show students that people's views about the future differ
- to recognize the importance of studying the future
- to emphasize how students' personal lives intersect with the world

skill

- to learn how to create a concept map

Materials

- unlined paper, at least 2 sheets per group of 3 students
- markers, crayons, or colored pencils
- newsprint paper or chalkboard
- Transparency, *What is a Concept Map?*

Time

- 1 class period

A concept map is a method to assist students in clarifying an abstract idea. The most general concept or idea—or a framing question—is placed in a circle in the center of the paper. Students then think of any words, ideas, or impressions that relate to this concept or question and write these ideas on the paper, linking them in some way. This is an open-ended way to explore what students know, what perceptions they hold, and how students view the relationship between many different ideas. Concept maps can be used as a preview and as a review.

In Part 1 of this activity, students will brainstorm different words and pictures that come to mind when they hear the word "future." In Part 2, students will draw a concept map illustrating their thoughts about the future and how these thoughts are related.

If you have never used concept mapping with your class before, we recommend that you demonstrate a simple concept map with your students. Choose a simple concept (examples: community, change, order) and, encouraging student participation, map it out on the chalkboard.

Procedure Part 1

1. Set the context for this activity and this unit by explaining to students that they are going to study the future and how experts have studied the future.

2. Divide the class into groups of three. Hand out unlined sheets of paper to each group. Instruct the recorder of each group to write the question "What is the Future?" at the top of the paper.

3. Ask each group to write down words, phrases, or even draw pictures that they think of when they hear the word "future." If students need some prodding to begin this activity, encourage them to consider questions such as:

    - What is the future composed of?
    - When does the future occur?

- Is the future important?
- How should people study the future?
- What do you think your future includes?

4. Give the groups 5-10 minutes to list their thoughts about the future. Ask the one person from each group to post his/her group's list on the board.

   Generate student discussion by looking at each group's list and seeing how each list resembles and differs from the others. It is important to point out that individual perceptions and definitions of the future will vary. The future will be different for everyone in this world.

5. With the class, group these words/ideas/pictures into categories. Make a list of of these categories or topics on the chalkboard. Sample categories of ideas associated with the question "What is the Future?" might include: time, people, society, problems, questions, predictions, forecasts.

Part 2

1. Now, students should draw a concept map to determine how the different ideas that they came up with in Part 1 are related. Show students the Transparency as an example of a concept map. Have students fill in the remaining spaces, and expand on each one with more ideas.

2. Again working in groups of three, students should begin this activity by having the recorder of each group draw a circle in the middle of their paper, with the words "the future" (or the question "What is the Future?") written inside.

3. Then instruct students to draw lines from the center circle on their paper and draw secondary circles for each of the categories that the class just came up with in Procedure #5.

4. Encourage students to think about questions like:

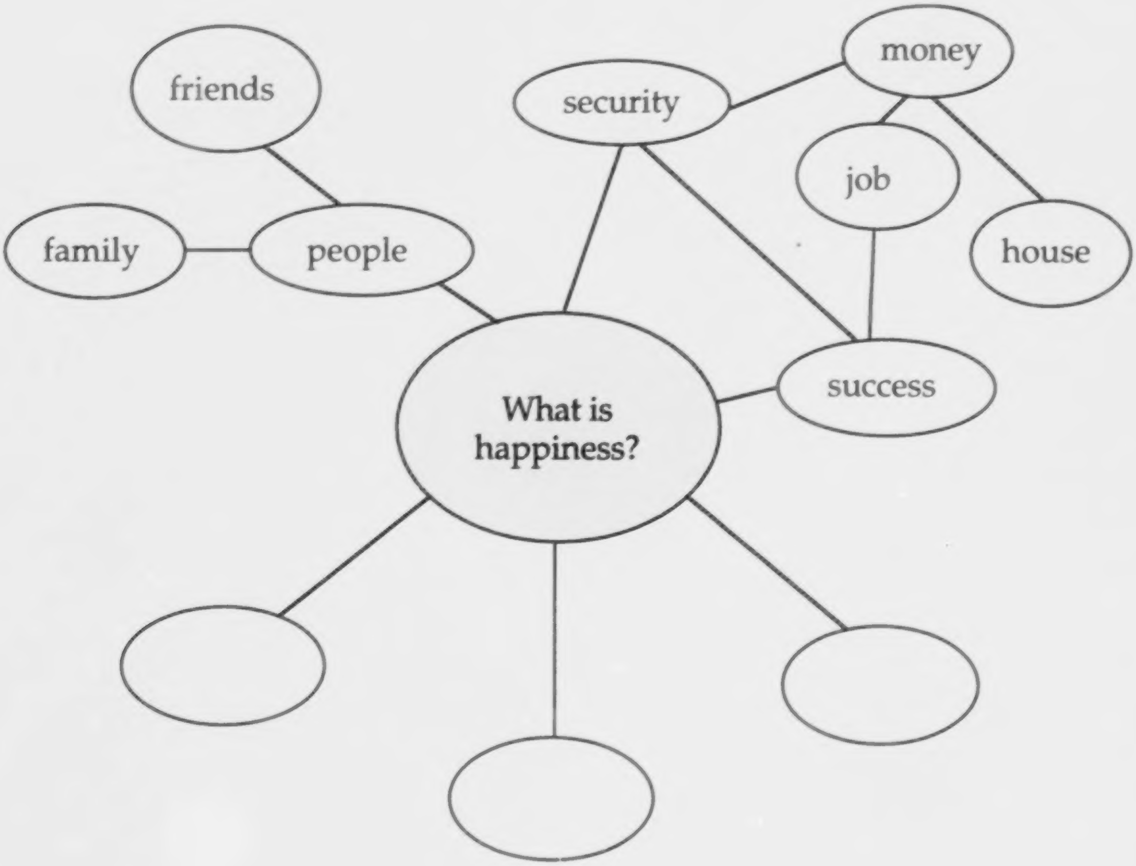
   - What parts of the future are predictable or unpredictable?
   - Is the future based on facts or feelings or both?
   - What problems may happen in the future?
   - How can the future be studied?

5. Emphasize to students that there are no right or wrong answers in this mapping activity. There are many ways to define and view the future. And the future is composed of many things—but most importantly, people.

6. Debrief this exercise by having a person from each group post the team concept map on the chalkboard. Each group should share with the class its reasons for choosing the words/ideas/pictures that it chose.

WHAT IS A CONCEPT MAP?

A concept map (sometimes called a "mind map") is a method used to help clarify a concept. The most general concept or idea—or framing question—is placed in a circle in the center of the sheet of paper. Words, ideas, or impressions that relate to this concept or question are written down in circles and linked to related ideas with connecting lines.


friends
security
money
job
family
people
house
success
What is happiness?

BEST COPY AVAILABLE

(From James Bellanca, *The Cooperative Think Tank: Graphic Organizers to Teach Thinking in the Cooperative Classroom*, Chapter 5)

© SPICE

Lesson 2

HISTORICAL ANALOGY

Organizing Questions

- What is historical analogy?
- How can studying history help us learn about the future?
- How can we apply "lessons from history" to the future?

Introduction

> "... without knowing the past, citizens cannot know the choices before them."
>
> —The National Center for History in the Schools, *Lessons from History*, p. 3.

> "[What cannot be ignored is] everything that can be learned from the lives of countless men and women whose historical and humanistic education prepared them for great work in the 'futures' of their own eras. If they knew how to meet the unexpected, it was not out of formulas and 'skills' but out of first knowing themselves and the human condition."
>
> —The National Center for History in the Schools, *Lessons from History*, p. 5.

One way to better understand what might happen in the future is to study the past. Studying the past can illustrate how people's lives have been affected by events in history and shed some light on how future events may affect people's lives. By listening to personal narratives and memoirs, we can more closely understand how history has shaped people's lives, both individually and collectively. And we can better understand how certain historical trends and themes surface over a period of time.

This lesson focuses on four significant periods in Chinese history: the Boxer Rebellion, the May Fourth Movement, the Cultural Revolution, and the 1989 Democracy Movement at Tiananmen Square. Although these four events represent only a sampling of events throughout Chinese history, they do illustrate a theme central to the history of any society: interaction and tension between change and continuity. One of the purposes of this lesson is to set the historical and cultural context for this unit by introducing students to some events in Chinese history. However, the main purpose of this lesson is to show students how the past is intricately linked with both the present and the future.

Objectives

knowledge

- to introduce students to key figures and events in Chinese history

- to recognize certain themes and trends that appear throughout history and will continue to shape the future

attitude

- to understand how personal lives intersect with global events

skill

- to make educated guesses about the future by analyzing the past
- to learn how to use historical analogy to make decisions

Materials

- Handout #1: The Boxer Rebellion
- Handout #2: The May Fourth Movement
- Handout #3: The Cultural Revolution
- Handout #4: The 1989 Democracy Movement at Tiananmen Square
- Transparency #1, *What is Historical Analogy?*
- Transparency #2, *History and the Future*
- Activity Card #1: The Boxer Rebellion
- Activity Card #2: The May Fourth Movement
- Activity Card #3: The Cultural Revolution
- Activity Card #4: The 1989 Democracy Movement at Tiananmen Square

Time

- 2-3 class periods

Procedure Part 1

1. Inform the students that the first part of this lesson will familiarize them with selected historical events which will later be used to examine the future.

2. To maximize participation by each student, divide the class into groups of 3-4 students per group. Each group will study one of the historical events. There can be as many groups as necessary with the same handouts and activities.

3. Distribute one handout per group. Group members may select one person to read the handout aloud, or members may take turns reading aloud. At the end of each handout is an activity that enables students to "participate" in the historical event. Each group should be prepared to present their completed task to the class.

   After the group or groups reading about the Cultural Revolution have completed their discussion of the poster on Handout #3, page 18, read them the following caption:
   "Chairman Mao says, 'All our literature and art are for the masses of the people, and in the first place for the workers, peasants, and soldiers; they are created for the workers, peasants, and soldiers and are for their use.'"

4. Have each group present their historical event and activity. Encourage all group members to participate by dividing up items to present.

5. Take a moment to discuss the following questions as a class:
   - How are these four events similar?
   - How are they different?
   - What is the underlying theme that connects these four events? (People are dissatisfied with the government and express their anger through protest, demonstrations, and civil unrest.)

Part 2

1. Start by explaining to the class that they will now learn how to use historical analogy based on what they have learned about China in Part 1.

2. Show Transparency #1, *What is Historical Analogy?* As a class, or in small groups if you prefer, have the students read the dictionary definitions of "historical" and "analogy." Then, ask them to try to define the term "historical analogy" based on this.

3. Next, show Transparency #2, *History and the Future.* Ask the students to use the quotes to help them relate their definitions of "historical analogy" to the future.

4. Take a moment to discuss the following questions:
   - What is historical analogy? (*using a historical situation to make deductions about the future regarding a similar event or situation*)
   - How can looking at the past "enlighten the future"? (*It can help us to understand our present and influence the choices we make.*)
   - What kinds of lessons can we learn from the past? (*We can learn valuable lessons about why situations exist, how to avoid failure, etc.*)
   - How could knowledge of the past help make us more successful? (*We could avoid making the same mistakes.*)
   - What is the danger of using a historical event that is NOT adequately similar to the future event in question? (*The analogy would not be accurate and decisions made based on a false analogy would be misguided.*)

5. Have students regroup into their previously designated groups. Distribute Activity Cards #1 - #4 to the corresponding groups. This activity will ask students to use historical analogy to make a decision about the future.

6. Have each group present their activity. Encourage all group members to participate by dividing up items to present.

7. Debrief the activity and the lesson with the following questions:
   - Did it help you to know about a similar historical event when you were faced with a predicament? How?
   - What lesson did you learn from the past that affected the way you made your decision?
   - Would you have reacted differently to the situation had you not known of a similar previous event? How?
   - Give some examples of how historical analogy can be useful in your own lives.

GROUP 1: THE BOXER REBELLION

The setting is northern China in the late 19th century. Many Chinese were feeling frustrated and angry about the state of China during this time period. Resentment against foreigners and foreign ideas in China was growing and gave rise to the formation of the Boxer Society, a group of angry citizens who blamed foreigners for China's problems. The Boxers, originally called the Spirit Boxers, derived their name and identity from a combination of two peasant traditions—the technique of martial arts, also known as "boxing", and the practice of shamanism (Fairbank, p. 230). They wished to rid China of all foreign people and ideas, so they embarked on a campaign of widespread persecution of Christian missionaries and foreign diplomats. The Boxers originated in rural Shandong and gradually gathered strength by recruiting followers in Beijing and Tianjin. By June of 1900, they had attacked churches and missions throughout the region, and killed both Western missionaries and Chinese people who had converted to Christianity. They also took siege of the foreign diplomat compounds in Beijing. At this point, the Empress Dowager, China's leader at the time, declared war on all foreign powers. Foreign troops promptly arrived and ended the uprisings by August. Chinese negotiators avoided more severe retaliation by foreign powers by labeling the event as the "Boxer Rebellion," instead of a true war against foreign nations (Fairbank, p. 231). That way, the existing treaty system with foreign countries remained intact, and additional penalties and fines were imposed that left China more demoralized and weakened than ever before (Fairbank, p. 231).

What was the root of this anti-foreign sentiment? Both the presence and function of the foreign population, mostly European missionaries and imperialists, were bitter reminders of the humiliation that China had experienced at the hands of foreigners during the Opium War from 1839 to 1842. The war itself had been, in part, an economic measure taken by the British to forcibly balance trade differences between China and Britain. The terms of the Treaty of Nanjing that ended the war rendered China somewhat powerless to combat further foreign domination in terms of international trade, economy, and even religion. Unfortunately, these events also set a precedent for the way foreign countries dealt with China, by force and manipulation. In the years that followed the first Opium War, China was forced to sign more and more unequal treaties, which impacted the economy as well as people's morale. Most Chinese wanted China to become a stronger nation using Chinese, not foreign, ways of thinking, especially since foreigners had brought so much trouble to China. The Boxer Rebellion was a manifestation of China's xenophobia, as well as people's dissatisfaction with the government. More importantly, the Boxers were one of the tools used by the Empress Dowager to try to save her dwindling leadership powers.

The following excerpts are taken from the letters and autobiographies of three people—one Chinese, one American, one British—living in China during this period. Read their stories to help you better understand the complex relationship between people from very different cultures.

Afterwards, choose one person's account of the Boxer Rebellion and write a newspaper article of it as if that person were a newspaper reporter for their country. The article should be 2-3 paragraphs long and should reflect that person's unique perspective. Be sure to include an attention-grabbing headline and even a picture if you like.

Name: Ning Lao T'ai-t'ai (Old Mrs. Ning)
Background: Old Mrs. Ning grew up in the city of P'englai in Shandong Province, China, during the mid-1800s. She was the youngest child of three born to the Hsu family.

There had been foreigners living in P'englai ever since I was a child. The first time I had seen the tall man with the black beard I had thought he was a devil and had squatted in the road and hid my head in my arms. But I had gradually become used to them. The gate of our house, when my mother was alive, was only a few gates away from theirs. The room I rented from Mrs. Chang, who believed in their religion, and helped them preach it, had only a wall between my court and theirs. The foreign women had visited my mother while she was alive, and they visited the official ladies while I worked with them.

Mrs. Wilson was always my friend. It was she who helped me when I went to Chefoo at last. She was a good woman. But I could never believe in her religion, even when she begged me to. She would make me kneel with her and pray. I could not believe her religion. But I knew she was a good woman.

When she was married she wore a white dress and he wore black. We thought that very bad. Those were mourning colors. She said that it was the custom of her country to do so. But she rode in a red chair as we did. Her husband held the poles of the chair to steady it, and gave her great honor.

(As told to Ida Pruitt in *A Daughter of Han: The Autobiography of a Chinese Working Woman.*)

* * * * * * * * * *

Name: Eva Jane Price
Background: In 1889, the Price family left Ohio and went to Shansi, China as missionaries. They lived in China for several years and became targets of the Boxer Rebellion in 1900. The following excerpts from Eva's letters were written to her family in Iowa.

September 22, 1891

[*Eva is writing about the family's trip into the city that day.*]
... The path was good and the trees and water made it very pleasant. ...But after we got out of this immediate neighborhood to where the people were not acquainted with us, any little fellows who happened to see us would race away as though the evil one himself were after them. Today more than ever before it seemed to me we heard the cry on all sides, "Yang guizi"...—"Foreign devils!"

February 14, 1900

Do you hear of the trouble the Christians are having in two provinces just east of us? There is a native secret society called the "Boxers" who say they are going to overthrow the Protestant religion in China. They are persecuting the Catholics too. Just how far they will be allowed to persecute missionaries and their converts is not easy to say. They have ruined the homes or some forty church members where our friends, Arthur Smith and his wife, live, and they have killed one missionary belonging to an English society. ... So far in Shansi we have had no reason to fear any trouble. The people who come about us are friendly and this province is considered the quietest and its people the gentlest of any province in the empire."

(Excerpts from China Journal, 1889-1900.)

handout #1

Name: Lancelot Giles
Background: Lancelot Giles was completing his first year in Beijing in 1900 as a member of the British Consul in China. He wrote down his impressions and the activities which occurred during June and July of 1900, which later became known as the "Siege of the Legations in Peking." Giles wrote these impressions in letters to his father in England.

June 9th, Saturday

... News came that the Boxers had advanced right up to the city on the west, and had sacked the Race Course grandstand. That afternoon Kirke, Porter, Warren and myself rode out to see what damage had been done. We arrived while the ruins of the stand were still smoking, and found a crowd of men from the neighbouring village looting the bricks etc. etc. We charged them, and scattered them right and left. After a rest we decided to proceed yet further west and see what further damage had been done by the Boxers in their advance. We had not gone more than a quarter of a mile, before we saw the road before us blocked by a dense crowd of Chinese. As soon as they saw us, they began to yell: '*ta, ta*' and '*sha, sha*' (kill, kill). We still advanced till within a hundred yards of them. They then began to dash forward, waving swords and spears which shone ominously in the sun. We promptly wheeled, and galloped off, quickly outdistancing our pursuers, who nevertheless kept up the chase for some time.

June 19th, Tuesday

... Today was one of great importance, as at 4 p.m. we received an ultimatum from the Tsungli Yamen to leave Peking within twenty-four hours, as the Taku forts had been bombarded and taken by foreign troops. The Tsungli Yamen promised us safe escort to Tientsin. We were all dead against it ... Some days later ... we heard that the Boxers had actually planned to blow up the boats we should have used on the canal, with torpedoes. In any case it would hardly have been advisable to put any faith in the assurances of the Tsungli Yamen or the protection of the Chinese troops.

(Excerpts from Lancelot Giles, *The Siege of the Peking Legations: A Diary*.)

GROUP 2: THE MAY FOURTH MOVEMENT

The setting is Beijing, China, on May 4, 1919. In the afternoon on this day, about 3,000 university students and intellectuals gathered at the Gate of Heavenly Peace in Beijing and began a protest march to the foreign diplomatic quarter. Similar protests were staged around the country with the intent of alerting the populace to perceived government inadequacies. The police blocked the students so they instead went to the home of Cao Rulin, the minister of communications, who was known to be pro-Japanese. Cao escaped before the students reached him. Still, they broke in, set fire to his home, and beat up some of his family and friends that they found hiding. The police arrested and jailed dozens of students. Many were wounded, some even killed. This incident marked the beginning of the "May Fourth Movement," a significant turning point in Chinese history. The founding of the Chinese Communist Party (CCP) was a result of this movement.

What caused this public outcry? During the Versailles Peace Conference in January 1919, at the end of World War I, China learned that two years earlier, England, France, and Italy had signed secret treaties with Japan, promising to let Japan have a major port city in the Shandong Peninsula. Germany had leased this land from China in 1898 and China had hoped to regain it. However, these treaties had already been signed, and gave Japan more power at the conference. The Chinese government had little choice but to accept this unfair arrangement. The protesters who gathered May 4, 1919, were dissatisfied with the Chinese government and regarded China's weakness in international politics as unacceptable. What people did not know was that China had also made secret agreements with Japan during the war (Bruce Elleman, pp. 3-4). Had they known this, perhaps their feelings would have been different. Protesters asserted that the government should be strong enough to refuse unequal treatment by other nations. The feelings expressed by people on this day carried great momentum and became known as the "May Fourth Movement." Popular support was demonstrated through labor union strikes, boycotts of Japanese goods, and open hostility towards Japanese residents. Never before in Chinese history had there been such a broad demonstration of national feeling and solidarity (Fairbank, p. 268).

Many people believed that one reason why China was not respected internationally was because of problems in Chinese society. Thus, the movement became a social revolution to transform China's traditional culture into one defined by science, democracy, individual self-expression, and new patriotism (Fairbank, p. 268). Students and other intellectuals often voiced their thoughts and ideas through literature. One publication, the *New Youth* magazine, published a manifesto (a declaration of views) in late 1919.

Read the following manifesto written by Chen Duxiu, the former editor of *New Youth* magazine. Chen Duxiu was dean of students at Beijing National University in 1919 and a founder of the CCP.

Afterwards, design a picket sign for the protest march. Create a sign that you feel captures the mood and intensity of the protesters' beliefs. On the sign should be a short slogan and/or illustration to represent your ideas.

Manifesto

... Our ideal new era and new society are to be honest, progressive, positive, free, equal, creative, beautiful, kind, peaceful, full of universal love and mutual assistance, and pleasant labor; in short, happiness for the whole society. We hope that the hypocritical, the conservative, the negative, the bound, class-divided, conventional, ugly, vicious, warring, restless, idle, pessimistic elements, happiness for the few—all these phenomena will gradually diminish and disappear.

The new youth of our society certainly will respect labor; he should according to his own ability and interest treat labor as free, pleasant, and beautiful rather than consider such a sacred thing a mere means for maintaining a subsistence.

We believe that the moral progress of mankind should expand to a standard above the life based on animal impulse (i.e., aggressive and possessive); therefore, we should extend a feeling of friendship and mutual assistance to all peoples of the world. But toward aggressive and possessive warlords and plutocrats we have to be hostile. ...

Although we do not believe in the omnipotence of politics, yet we recognize that politics is an important aspect of public life. ...

We believe that politics, ethics, science, the arts, religion, and education should all meet practical needs in the achievement of progress for present and future social life.

We have to give up the useless and irrelevant elements of the traditional literature and ethics because we want to create those needed for the progress of the new era and new society.

We believe that it is requisite for the progress of our present society to uphold natural science and pragmatic philosophy and to abolish superstition and fantasy.

We believe that to respect women's personality and rights is a practical need for the social progress at present, and we hope that they themselves will be completely aware of their duty to society.

(Excerpts from Chow Tse-tsung, *The May Fourth Movement: Intellectual Revolution in Modern China,* pp. 174-175)

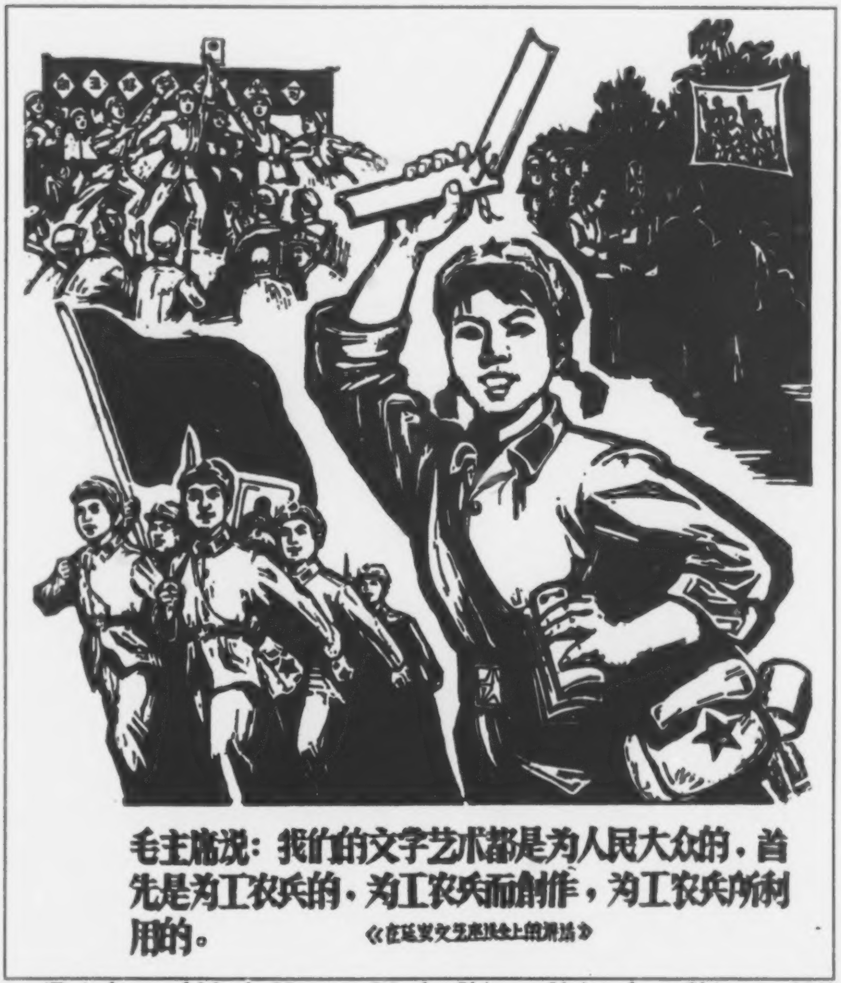
GROUP 3: THE CULTURAL REVOLUTION

The setting is China, in 1966. It is a dramatic and tumultous time in Chinese history known as the Cultural Revolution, which officially lasted for 10 years, ending in 1976. The primary force behind the Cultural Revolution was Mao Zedong, the Chairman of the Chinese Communist Party. Some people believe that Mao started the Cultural Revolution to regain his control of Communist policy by provoking an internal party struggle. But Mao himself stated that the purpose of the Cultural Revolution was to destroy China's repressive government bureaucracy—and restore the revolutionary spirit of the Chinese people, leading China towards a more favorable system of socialism. Workers, peasants, and soldiers made up the elite class under Mao's ideology. Mao believed that true power lay in these "masses" of people and he called upon them to take charge and exercise their newfound rights in the fledgling socialist era.

Mao tried to achieve his goals by urging the youth to challenge authority and become revolutionaries. All of the schools in China were closed and students eagerly took up roles as the "Red Guards" who would lead the revolution. They were encouraged to attack the bourgeois aspects of culture, tradition, and intellectual authority, but the logistics of being a "revolutionary" and the objectives of this movement were so vague that many tragic abuses of power occurred, resulting in personal feuds, destroyed careers and families, suicides, and murders. People tried to protect themselves by attacking friends and even their own families. Nobody wanted to be considered "reactionary" (non-Communist) and yet deciding just who was a true Communist created chaos. Intellectuals, bureaucrats, and anybody with foreign connections of any kind became the targets of criticism and attacks during the Cultural Revolution. Throughout this period of apparent anarchy, Zhou Enlai, the premier of China, emerged as the sole moderating force who used whatever power he had to save the country by counterbalancing the extreme Maoist initiatives. At the end of 1968, the tone of the Cultural Revolution changed, partly as a result of the increased fighting among the Red Guards, but mostly because of Mao's fear of Russia's creeping influence over the CCP. Mao feared the bureaucratization of the CCP and viewed the Soviet example as a threat to China's Communist Party. Thus, after nearly three years of uncontrolled pandemonium, Mao called in the army to restore a semblance of order to the movement. He then refocused his efforts on foreign policy and began to seek diplomatic relations with the United States as an intended measure of security against Russia.

The remaining years of the Cultural Revolution were marked by power struggles within the Chinese Communist Party leadership. Mao Zedong's death in 1976 symbolically marked the end of a decade of drastic social, political, and economic changes for China. Exactly how many people suffered during the Cultural Revolution may never be known, but it is estimated that 100 million people were targeted and attacked. As many as 1 million people may have died during those ten years. The Chinese people had lost respect for their leaders, many of whom ironically had begun the Cultural Revolution believing that it would truly help the Chinese people create a better society. But the results were disastrous, not only in the loss of lives but also in the loss of respect for authority and in the confusion about the relationship between tradition and change in society.

After you have finished reading, examine the poster below and discuss the following questions. When you have finished, ask your teacher to read you the English translation of the caption.


毛主席说：我们的文学艺术都是为人民大众的，首先是为工农兵的，为工农兵而創作，为工农兵所利用的。
《在延安文艺座谈会上的讲话》

(Deirdre and Neale Hunter, *We the Chinese: Voices from China*, p. 282)

- What message do you think this poster is trying to convey?
- What do you think the caption says?
- What is the significance of each illustration?
- What kind of emotion and mood are displayed?

Next, read the following accounts of the Cultural Revolution. These selections offer a variety of perspectives on the Cultural Revolution, but all share the same intensity of emotions. Draw a poster, in the same format as the one above, that depicts the experiences of these particular people. How is the message of your poster different from the one above?

© SPICE

BEST COPY AVAILABLE

Age: 20
Sex: Male
Occupation: Student at a teacher's college

I still remember the scene when we denounced my department head. ... I admired his scholarship. I worshiped learned people like that. How could I hate him, let alone beat him? Once during a criticism meeting he was forced to wear a dunce cap. The thing was made from a wastepaper basket with paper glued around it. I'd run out of new criticism, but the others would get ticked off if you just repeated the same old stuff. So I had to come up with something "from a higher plane of principle," as we said in those days. ... The head was over fifty and had high blood pressure and stuff like that. As we were denouncing him, he was told to turn around in circles on a chair with his dunce cap on. You didn't dare show any sympathy in such an atmosphere. ... I didn't have the heart to torture him, but you had to put on a good show. The harsher you were, the more revolutionary you'd be considered. That's why things got so bad. ...

Afterward I went to see the department head. He was sitting there sobbing to himself. ... It really made me sad. ...

(Excerpts from Feng Jicai, *Voices from the Whirlwind*, "A Senior Red Guard's Apologia," pp. 63-101)

* * * * * * * * * *

Age: 56
Sex: Female
Occupation: English teacher at a Chinese university

Ruth Earnshaw Lo is a caucasian American English teacher married to a Chinese man. They were living in Canton (Guangzhou) in 1966.

... a representative from the Task Force wanted to see me to explain the situation. ... She hoped that I would understand that the present Cultural Revolution was a very important and very complex event. I said something about "revolutionary movement" and she corrected me in words I had heard before: "This is not a revolutionary movement, this is The Revolution. ..." The important thing was to study Chairman Mao's Thought and "to learn from the masses."

"What should I do?" I asked. "There are no classes, and no one seems to know whether I should attend meetings about the Cultural Revolution or not. While I have the greatest respect for Chinese culture and try my best to study it, I am, after all, a foreigner, and cannot hope to understand it as a Chinese does. I am not in a position to have opinions of my own and might easily be misled. ..."

My "duty" was to study the documents as they appeared in English in the Peking Review (which she saw on my desk), to learn from the masses and from my students ... and to continue to serve the people.

And so it came about that I experienced the Great Proletarian Cultural Revolution mainly through my husband, children, and friends. They, however, were inevitably involved in i[illegible]nd through them I shared the agony of destruction and loss to the land and the people I cared [illegible] I was in the eye of the typhoon.

(Excerpts from Ruth Earnshaw Lo and Katherine S. Kinderman, *In the Eye of the Typhoon*, pp. 22-24)

handout #3

Age: 30
Sex: Female
Occupation: Doctor

I killed my father with my own hands. ... My wounds can never be healed. Even after twenty years I still can't figure out whether I was right to kill my father.

The twenty-sixth was the beginning of the ransacking of my home. It was also the climax of the ransacking in the city. Our door was suddenly forced open by a group of middle-school Red Guards armed with clubs. They declared that my father was a capitalist. In fact, it was a misnomer. My father had inherited a house from his parents and rented out a vacant room on the ground floor. At most he could be called a householder. But in those days renting was synonymous with exploitation, that is, profiting without labor. Within minutes the Red Guards had smashed everything in my home to bits. My whole family was forced to kneel down in the hallway. We were all very naive and had no experience of such violent abuse. We were scared out of our wits.

... From the twenty-sixth to the twenty-eighth, from dawn to dusk, my parents and I were locked up and beaten with belts. Our hair was shorn to the roots. We were dragged out to the street again and again to be denounced and humiliated before the neighborhood. We never had a moment's peace. They tormented us ceaselessly until we no longer even felt a semblance of humanity ... Tension was mounting rapidly and we had reached our breaking point. Even death seemed preferable to this.

... At daybreak the Red Guards would show up again. More denunciations, more humiliating parades, more physical torture. Too much to face. There was no way out. So the three of us made up our minds to die together. ... Since I was the doctor, we decided that I'd kill them first and then do it to myself. But things didn't turn out as we expected. Before going through with it, we sat there hand in hand for God knows how long. The thought of parting forever was almost too much. ... My parents both insisted that I go ahead with it. I had never thought myself capable of killing anyone, let alone my parents. But under these circumstances I was capable of it, and I had no other choice. My father encouraged me. He told me, "What you must do is something good. You will relieve our sufferings. Mother and I can't stand any more torturing when the Red Guards come again." My mind was too shattered. I felt compelled to do it.

... I felt for my father's strong artery and pierced it. Immediately the hot blood spurted out. ... Suddenly one of my brothers ran upstairs yelling like a madman. It sounded as if the Red Guards were coming. He came and held me tight. All of a sudden I realized that I couldn't go on with this. I nearly fainted, but managed to struggle free. I ran to the third floor balcony and jumped. If I had hit headfirst, I'd have died. But there was no time even to think about how to jump or what would happen to my mother. I only remember hearing all the sounds of hell and then nothing.

It's like I told you. We were really being driven out of our minds. Mother and I hadn't planned to jump out the window. It just happened. When you reach the end, you close your eyes and do the obvious thing like we did. We jumped. ... When I fully regained consciousness, I was told that my mother had jumped off the balcony right after me. Later when I was being interrogated, I was told Father had died on the spot but Mother had been saved. How I cried for my dead father and also for my mother. ... My mother hadn't died right away. Instead they took her to the hospital, but she was refused treatment. You probably know that at that time people without a socially acceptable family background weren't admitted. ... I was admitted only because I had to face legal proceedings. My mother died a few days later at home.

(Excerpts from Feng Jicai, *Voices from the Whirlwind*, "Was I Really Guilty?" pp. 38-54)

Age: 5
Sex: Male
Occupation: Kindergarten student

I only want to share with you something that has been buried deep in my heart for almost thirty years. ... When the Cultural Revolution began, I was only five years old. But some images of it are still strikingly clear in my mind. I remember watching one person being paraded by a group of people on the street, a big white board hanging from his neck in front of his chest. I didn't know what was written there since I hadn't yet learned to read. A big tall hat was jammed onto his head. He was pushed and pulled by people who were hitting gongs. When they took him to his own house, he was made to stand on a table in front of the door. People angrily waved their fists and shouted slogans.

In our neighborhood, there were many more poor people than rich ones. We were among the few rich families that were ransacked. Therefore, I was named a "bastard" by other kids my age. Children from families with good class backgrounds attacked me at will. When I walked on the street I would sometimes be hit by a score of rocks coming from nowhere. When I stayed at home I would sometimes be startled by uproarious laughter. The scolding of "bastard" never left my ears. ...

... I tried to stay away from other people, especially children of my own age. I believed that adults did not harbor as much hostility against me, but kids my own age considered me their enemy. I lived a nervous and tiring life. Only when I lay in bed at night did I feel a little safer. The night time belonged to me, a time when I could fantasize being a super child with so much power that I could throw all the kids who had beaten me onto the ground till they begged for their lives on their knees. But when daylight came, a strong and deep sense of terror overwhelmed me once again. I felt lonely, cold, and helpless.

(Excerpts from Feng Jicai, *Ten Years of Madness,* "Dead Face," pp. 227-234)

GROUP 4 : THE 1989 DEMOCRACY MOVEMENT AT TIANANMEN SQUARE

The setting is Beijing, China, in the spring of 1989. Over 100,000 people gathered together in Tiananmen Square to demand democratic reforms in the government. The demonstration began in mid-April, triggered by the death of Hu Yaobang, a former chairman of the Chinese Communist Party (CCP) who had been forced to resign two years earlier because of his democratic ideas. They strategically planned the demonstrations to coincide with a highly publicized visit from Mikhail Gorbachev, an event that promised worldwide media coverage. In the beginning, there were only a few thousand protesters, most of whom were students or intellectuals. Because of their anti-corruption campaigns, they soon attracted the support of workers' unions, which added considerable numbers to the protests. They spent weeks in the square picketing; distributing flyers; singing songs; broadcasting manifestos, poems, and letters; and rallying for public support. On May 13th, many of them began a hunger strike; some even refused to drink water! They hoped to prove their loyalty to China by showing their willingness to sacrifice their own lives for their beliefs. Such passion fueled the public interest and the movement steadily grew, reaching one million people at one point.

Deng Xiaoping, the most powerful leader of China at this time, was increasingly frustrated by what he perceived to be a rebellious outcry. Li Peng, then the premier of China, urged Deng to end the uprisings by calling in the army. On May 20th, they declared martial law and sent the People's Liberation Army (PLA) into Beijing to forcibly end the demonstrations. Hundreds died and thousands were injured on the night of June 4th, in this decisive display of power that Deng steadfastly believed would end what he called a "counter-revolutionary rebellion." The press around the world reported horrifying stories of death and tragedy and displayed equally grim video footage and photographs to document these events.

What exactly did these protesters want from the Chinese government? They wanted to have a voice that would be heard by the leaders, one with which they could hold the leaders accountable for their actions. Corruption was a prevailing complaint against the government, which is the main reason why the workers' unions supported the demonstrations. They also yearned for a free press that reported the truth, instead of what they considered typical party propaganda that masked the CCP's shortcomings and failures. This is why the death of Hu Yaobang sparked such massive protests. Hu had been a favorite leader among the students because of his efforts to transform the CCP into a pragmatic, accountable, and collectively run governing body. When he assumed the role of the party chairman, Hu began to replace the incompetent and corrupt party leaders with younger, more educated cadres. In other words, he was trying to lead China towards democracy, until he was ousted from office.

Since the events on June 4, 1989, the Chinese press has tried to portray the incident as a necessary move to crush a violent anti-government rebellion. They have led various campaigns to arrest, imprison, and even execute those they believed to be main instigators of the movement. Some individuals fled the country and sought political asylum in countries such as the U.S. and are continuing their crusade from the safety of foreign soil. The democracy movement is not over. Many countries are hoping that China's increased economic interdependency with the rest of the world will gradually make way for political and democratic reforms.

The following selections have been chosen to give you a better understanding of the Democracy Movement at Tiananmen Square. The first poem was one of the many that was broadcast over the loudspeakers set up at Tiananmen Square during the protest. It was written by an anonymous Beijing resident. The second poem is part of a song written about the events. The author is a Westerner. Also included are several headlines taken from Chinese and American news publications.

Read the selections written by the Chinese citizen, the Western lyricist, and the American journalists. After you have finished reading, complete the following:

- Describe the mood and emotion of the first poem.
- Compare and contrast it to the mood and emotion of the second poem.
- Describe the feelings and emotions reflected in the American news publications.
- What are people's accusations towards the government?
- Based on these three selections, what are your own impressions of the Chinese government?

Now read the headlines that appeared in Chinese publications. These reflect the perspective of the Chinese government.

- Is the tone different? How?
- How is this same set of events portrayed?
- Have your impressions of the government changed?

handout #4

FOUR PERSPECTIVES ON THE 1989 DEMOCRACY MOVEMENT AT TIANANMEN SQUARE

Chinese citizen

Untitled

A red garbage can, it took many years to cast its form.
The power of the party, government, and military is the shell,
But with whose blood was it dyed red?
A red garbage can, filled up with feudalism and autocracy.
Deceptive policy is the shell,
And what's inside is anyone's guess.

Anonymous

Western lyricist

There are tears that flow in China
for her children that are gone.
There is fear and there is hiding,
for the killing still goes on.
And the iron hand of terror can
buy silence for today,
but the blood that lies upon the square
cannot be washed away.
Oh children, blood is on the square.

(Excerpt from Phillip Morgan, "Blood is on the Square")

American journalists

"Beijing Bloodbath," Mark Avery, *Newsweek*, June 12, 1989, p. 24.
"Despair and Death in a Beijing Square," Howard G. Chua-Eoan and Jesse Birnbaum, *Time*, June 12, 1989, p. 24.
"Troops Roll Through Beijing to Crush Protesters; Hundreds Feared Killed as Chinese Fight Back," Daniel Southerland, *The Washington Post*, June 4, 1989, p. 1.
"Uprising in China Crushed by Troops: Army Mows Down Hundreds," *San Francisco Examiner*, June 4, 1989, p. 1.

Chinese government

"Counter-Revolutionary Riot Quelled," *Beijing Review*, June 12-25, 1989.
"Troops Ordered to Restore Order," *Beijing Review*, June 12-25, 1989.
"Statement Calls for 'Quelling the Riot,'" *China Daily*, June 6, 1989.

WHAT IS HISTORICAL ANALOGY?

The following definitions have been taken from Merriam Webster's Collegiate Dictionary, Tenth Edition:

historical: 1 a: of, relating to, or having the character of history **b:** based on history

analogy: 1 inference that if two or more things agree with one another in some respects they will probably agree in others **2 a:** resemblance in some particulars between things otherwise unlike: SIMILARITY
b: comparison based on such resemblance

HISTORY AND THE FUTURE

"... without knowing the past, citizens cannot know the choices before them."

—The National Center for History in the Schools,
Lessons from History, p. 3

"...knowledge of the past may enlighten the future."

—Wendell Bell, *Foundations of Futures Studies,* p. 177

GROUP 1: THE BOXER REBELLION

The year is 2010. You and the people in your group are Chinese students at a university in China. There are many foreign exchange students at your university. Even though you have a few friends among these foreigners, you and your friends generally resent their presence for a number of reasons. You are offended by many aspects of their culture, religion, behavior, political views, and lifestyle. The foreign students can sense this underlying tension and are feeling ostracized and unhappy.

This situation reminds you of a historical event that took place in China over a hundred years ago called the Boxer Rebellion. Use your knowledge of the Boxer Rebellion to come up with a viable solution to this problem. Be creative! Be prepared to share your presentation with the class.

What steps would you and the people in your group take to improve the relationship between Chinese and foreigners living in China? Make a list of the specific obstacles you would have to overcome and then make of list of ways that you and your groupmates would resolve conflicts between you and the foreigners.

GROUP 2: THE MAY FOURTH MOVEMENT

The year is 2010. You and your group members are students in China. You see that there are many problems in society that have gone unchecked while the economy has been developing. Drugs, crime, and sexually transmitted diseases are serious social and moral issues. Environmental pollution is rampant and the government's ethics are under intense scrutiny by other nations. Because of these problems, many nations have lost much respect for China. You would like to change the situation, address the problems, and help China gain respect internationally.

This situation reminds you of a historical event that took place in China 91 years ago called the May Fourth Movement. This was a time when many people in China tried to change their society too. Use your knowledge of the May Fourth Movement to help you come up with a viable solution to this difficult problem.

What course of action do you think would be most successful? Write a manifesto stating your group's views on how to improve society.

© SPICE

GROUP 3: THE CULTURAL REVOLUTION

The year is 2010. You and the people in your group are high school students China. Recently there has been much dissent within the government and among the people of China. You and your friends have been given orders by the government that you do not agree with. You have been taught to respect authority but you feel uneasy about doing things that you do not like.

This situation reminds you of a historical event that took place in China several decades ago called the Cultural Revolution. It began in 1966, and was a dramatic time in history when students were faced with similar struggles.

As leaders of the student body, you are faced with a difficult predicament. As a group, write down your thoughts in the form of diary entries representing one person's diary written collectively by your group. Your group may decide if you want to have each group member write one entry or if you want one person to record the thoughts of the entire group, but be sure to include descriptions of:

- the situation and dilemma
- your feelings
- how your situation relates to the Cultural Revolution
- how the problems were addressed in the Cultural Revolution
- how you plan on handling the situation

activity card #4

GROUP 4: THE 1989 DEMOCRACY MOVEMENT AT TIANANMEN SQUARE

The year is now 2010. You and the people in your group now hold active roles in the Chinese government and have subtly kept pressure on the issue of democratic reforms throughout your political career. Up to this point in time, China has managed to develop a thriving economy without making any significant political changes. This may change. Economic reforms have unleashed an unprecedented and unanticipated societal force that has become increasingly restless in its desire for compehensive change. Crowds have begun to congregate in Tiananmen Square to voice their demands for democratic reforms. You agree that changes are necessary, but fear that the crowds will become unruly and violent in their cries for instant change. Their demands have not changed since the last democracy movement at Tiananmen Square in 1989.

Twenty-one years have passed since the events in Beijing, but you remember it well. You want to avoid any unnecessary bloodshed with the current situation so you decide to personally address their demands and allay their fears. Use your knowledge of the events of Tiananmen Square in 1989 to help you prepare your statement to the people. Remember, you must convince the people that the government will indeed change. Talk about the past mistakes of the government, your own personal feelings and hopes for reform, etc. Be sure to include a list of changes that will take place and how they might be enforced. Choose one person from your group to be the representative who will read it aloud to the rest of the class.

Lesson 3

TREND EXTRAPOLATION

Organizing Questions

- What is trend extrapolation?
- How do trends and limits interact with each other?
- How can analyzing patterns and trends help us understand what may happen in the future?

Introduction

> "[Trend extrapolation] consists of the *extension* of historical and present patterns into the future. It is basically a conservative, evolutionary mode of forecasting, which assumes continuous, linear, unidirectional movement from past to present to future, without the intervention of surprises or crises. ..."
>
> —John Haas, *Future Studies in the K-12 Curriculum*, p. 36.

Objectives

knowledge

- to illustrate the concept of exponential (population) growth and population density in China
- to understand how population growth is limited

attitude

- to recognize the importance of monitoring trends and limits

skill

- to learn how to use the tool of trend extrapolation
- to analyze what impact government legislation has had on population growth in China
- to learn how to use graphs to visualize trends and limits

Materials

- Empty dozen egg cartons, 8 for each group of 4-6 students
- 3 cups of unpopped popcorn kernels
- 28 cups of popped popcorn
- Activity Information Sheet
- Population Cards, Rounds 1-4
- Transparency #1, *Population Totals in China, 1940-2025*
- Transparency #2, *What is Trend Extrapolation?*
- Transparency #3, *Activity: Trend Extrapolation*

Time

- 2 class periods

Procedure Part 1

1. This activity is best done in small groups of 4-6 students. Although each group will be performing the same tasks, this small group approach has been chosen to help students refine their interaction with others and work cooperatively in small groups.

2. Distribute eight 12-cup egg cartons to each group.

3. Begin this lesson by showing Transparency #1, *Population Totals in China, 1940-2025.*

4. Explain that this activity illustrates population growth in China by using popcorn. In this activity, the numbers and statistics shown on Transparency #1 will be visually represented by popcorn. This activity will proceed in four rounds, during which the population of China will grow continually, as represented by the popcorn.

5. Distribute one copy of the Activity Information Sheet, to each group. Ask each group to read the handout and label the egg cartons according to the directions.

6. Announce the beginning of Round 1 and pass out Population Cards for Round 1. Each group must figure out how many unpopped kernels of corn it needs.

   Note that one unpopped kernel of corn represents 5 million people. Students should place an equal amount of popcorn in each egg cup section for best visual representation. Announce the end of Round 1 when all groups have placed their unpopped kernels in the two egg cartons marked "1965."

7. Announce the passing of 15 years and the beginning of Round 2. Pass out the Population Cards for Round 2. Each group should figure out the number of popped kernels that represents the increased population of China after time has elapsed.

8. Explain a popped kernel of corn represents 10 million people—twoce as many people as an unpopped kernel.

9. Make sure that each group understands the relationship between popped and unpopped corn. After conferring with one another to be sure the numbers are correct, students should then place these popped kernels in the two egg cartons marked "1980." This provides a comparison between the original population density and the present population density based on the same area of land (i.e., the same number of egg carton sections).

10. Announce the passing of 14 years and the beginning of Round 3. Pass out the Population Cards for Round 3. Again, have students in each group place the number of popped kernels equivalent to the increased population size into the two egg cartons labeled "1994."

11. Announce the passing of 31 years and the beginning of Round 4. Again, pass out the Population Cards for Round 4. Have students in

each group place the number of popped kernels equivalent to the increased population size into the two egg cartons labeled "2025." This provides another point of comparison for the idea of population growth, the rapidity of that growth over time, and the limited resources to accommodate this expansion (land, for example). If you want to check to make sure students have done the exercise correctly, the following table lists the total number of popcorn kernels that should be in the two egg cartons for each round:

Round	Year	# of Kernels
1	1965	725 ÷ 5 = 145 unpopped
2	1980	980 ÷ 10 = 98 popped
3	1994	1,200 ÷ 10 = 120 popped
4	2025	1,600 ÷ 10 = 160 popped

12. Debrief the activity by asking students to compare their four sets of egg cartons and the process of filling them.

    - Was it surprising how quickly the popcorn filled the egg carton sections?
    - Did it become more difficult to fit the popcorn into the egg carton sections with the progression of time?

13. Help students make the connections between this activity and actual population growth (and government legislation regulating that growth) in China.

    - What did the popcorn represent? (*people*)
    - What did the egg carton sections represent? (*land*)
    - How is this activity similar to actual population growth? (*The number of people increases while the amount of land stays the same.*)
    - How much did government actions influence the population growth over the four rounds?

    Explain that the population density of a country is the amount of people per unit of space. Compare the population density number on the Activity Information Sheet and the number of popcorn kernels per egg carton section to understand population density.

Part 2

1. Start by explaining to the class that they will now learn how to use a futurist's tool called "trend extrapolation" based on what they have learned about population growth in China.

2. Show Transparency #2, *What is Trend Extrapolation?* Have students analyze the identified trends. Are there more people affected than the ones mentioned? Who? If so, what are the advantages and disadvantages of the trend regarding them? You may want to ask students to practice using trend extrapolation by coming up with additional examples.

3. Now extend the discussion to include what students have already learned about China. Complete the trend chart on Transparency #3, *Activity: Trend Extrapolation* with the class.

- What was the trend in this activity? (*population growth*)
- Is it an increasing or decreasing trend? (*increasing*)
- Who or what is affected by this trend? (*humans, animals, natural resources*)
- What are the advantages and disadvantages of this trend? (*Consider issues such as natural resources, human interaction with nature, and government intervention of population growth.*)
- How long do you anticipate this trend to last?

4. After the chart is completed, generate a discussion with the following questions:

   - What are the underlying causes that created the trend in the past?
   - How stable are those conditions likely to be in the future?
   - What *new* developments are necessary for the continuation of the trend?
   - What new developments might alter it?
   - Is the trend approaching some saturation point or limit?
   - Does it conflict with some other trend?
   - Does the trend have potentially harmful consequences or side effects?
   - Are there likely to be deliberate efforts to halt or alter the trend?
   - How easily can the trend be halted and how long would this take?
   - If the trend does not continue, what are the most likely alternatives?

   (Draper Kauffman, Jr., *Futurism and Future Studies*, pp. 12-13)

5. Debrief this lesson with the following questions:

   - How can analyzing trends be useful? (*can help us see where a phenomenon is heading*)
   - Why is it useful to know where a trend is heading? (*so we can make more educated guesses and decisions about the future*)
   - How can you apply this to your own life?
   - What kinds of professions involve trend-watching and analysis? (*stockbrokers, businesspeople, technology companies, etc.*)

© SPICE

ACTIVITY INFORMATION SHEET

You should have eight empty egg cartons, each of which contains 12 cups. You will use two cartons for each round during the activity.

Label two of these egg cartons "1965,: two of them "1980," two of them "1994," and two of them "2025," so that you can remember which egg cartons represent which years.

Once you have completed a round, be sure to set those two egg cartons aside and use new ones for the next round.

Other Information:

In 1995, the average woman in China had one child.
The population density in China is 327 people per square mile.

POPULATION CARDS

Round 1
1965

Although the Chinese government has encouraged you to limit the number of children you have, most of your friends and relatives are having 5 or 6 children.

The population is 725 million. Place **unpopped** kernels representing this number into the cup sections of the two egg cartons labeled "1965."

Remember: Each kernel represents 5 million people.

Round 2
1980

Addressing the problem of a quickly growing population, the Chinese government has become stricter about limiting the number of children each family has. A government spokesperson tells you that you must have only one child. Families who have more than one child will not receive priority for housing and must pay for their second or third child's education. Families with only one child will enjoy many economic benefits, such as priority in housing and government-paid education for their child.

The population has grown to about 980 million. Place **popped** kernels respresenting this number into the cup sections of the two egg cartons labeled "1980."

Remember: Each popped kernel represents 10 million people, twice as many people as an unpopped kernel.

POPULATION CARDS

✂

Round 3
1994

Although the Chinese population is not growing as rapidly as before, partly because of the one-child policy, the population still has grown over the past 14 years. Now the population is 1.2 billion people.

Place **popped** kernels representing this number into the cup sections the two egg cartons labeled "1994."

Compare 1994 with the 1980 and 1965 sets.

✂

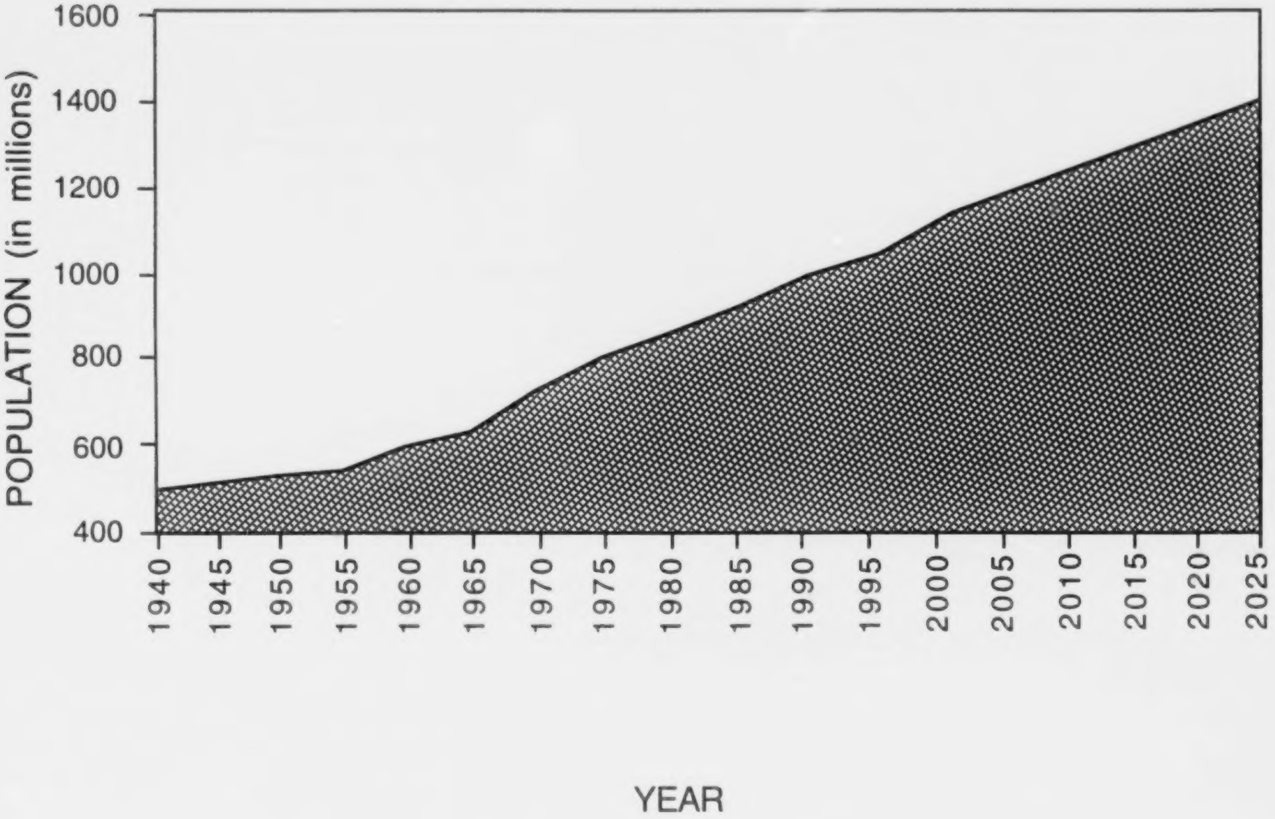
Round 4
2025

Even though you, and many of your friends and relatives, followed the government's policy and had only one child, the population of China has grown yet again. Now it is 1.6 billion.

Place the corresponding number of **popped** kernels into the cup sections of the two egg cartons labeled "2025."

Compare all four sets of egg cartons.

POPULATION TOTALS IN CHINA, 1940-2025



(Figures for the years 1940-1950 are taken from John Fairbank, *China: A New History*. Figures for the years 1950-1995 are taken from *China Statistical Yearbook 1995*. Projected figures for the years 2000 and 2025 are taken from "IRRI Rice Facts," January 1995.)

© SPICE

WHAT IS TREND EXTRAPOLATION?

> "Trends are usually identified by something that is increasing or decreasing over time. The purpose of 'trending' is to become aware of current trends and how they impact our lives today, as well as in the future"
>
> —Janet McCumsey, *Exploring the Future*, p. 6

One way to "trend," or extrapolate trends, is to identify consistent patterns, usually increasing or decreasing. Which trends are likely to continue? Are there any limits to these trends?

For example:

Increasing trends	**Who or what is affected?**	**Advantages**	**Disadvantages**	**Your predicted length of the trend**
Home computers	School-aged children	Students will learn necessary skills for the future	Students may know computer language unfamiliar to parents	Forever—th computers change rapi over the years

Decreasing trends	**Who or what is affected?**	**Advantages**	**Disadvantages**	**Your predicted length of the trend**
Typewriters	Clerical persons	More efficiency through word processing on computers	Causes clerical workers to retrain or seek new employment	Forever—typewriters will be obsolete

(From Janet McCumsey, *Exploring the Future*, p. 9)

ACTIVITY: TREND EXTRAPOLATION

___creasing Trend	Who or what is affected?	Advantages	Disadvantages	Your predicted length of the trend

© SPICE

Lesson 4

CROSS-IMPACT MATRIX

Organizing Questions

- How can a cross-impact matrix help us learn what the future may be like?
- What are some key environmental issues that China faces and how might these issues change in the future?

Introduction

A tool that futurists use to forecast the future is the cross-impact matrix, often used as a preparation for scenario writing. Using these tools, researchers can see what the outcomes of certain conditions and events in the future could be. Based on these outcomes, researchers can consider which present-day decisions will have the most desirable outcomes for the future.

This lesson is an introduction to the cross-impact matrix. It uses issues and questions in the Chinese environment as a case study of how using a cross-impact matrix can influence present-day decisions.

Students are introduced to five broad environmentally related issues that pose a challenge to China: water and air pollution, population growth, technology, and economy. Working in small groups, students will familiarize themselves with one of the above-mentioned topics by reading through a compendium of information on that topic. Students will then apply what they have learned about their given topic and use a cross-impact matrix to extract what trends related to the topic must be monitored and how these trends may interact with each other to produce various outcomes in the future.

Objectives

knowledge

- to learn key issues and concepts in the environmental situation on China
- to learn how these environmental issues are interrelated with aspects of China's economy
- to develop a broad base of knowledge about China

attitude

- to develop more future-oriented perspectives both on students' own lives and on events in the wider world
- to understand the complexity of decision making and the importance of making a well-informed decision

skill

- to work in small groups to make decisions
- to understand the cross-impact matrix

- to learn how to make educated guesses about the future
- to express creativity and demonstrate resourcefulness

Materials

- newsprint paper or posterboard, one per group (5 groups)
- markers, crayons, or colored pencils
- Handouts #1-5
- Activity Cards #1-5
- Transparency #1, *What is a Cross-Impact Matrix?*
- Transparency #2, *Making a Cross-Impact Matrix*
- At least 36 sheets of 11" x 17" paper

Time

- 2 class periods

This lesson will examine a number of factors that affect China's current environmental state: air and water pollution, population growth, technology, and the economy. By using a cross-impact matrix, students will be able to observe the way these conditions impact each other to produce certain outcomes. In Part 1, students will divide into five groups to read about their given topic. In Part 2, students will take their information and generate a cross-impact matrix.

Procedure
Part 1

1. Set the context for this activity by summarizing the above information for the students. Students will work on Part 1 in five small groups.

2. Divide the class into five groups, and distribute one of the Handouts, #1-5, and one of the Activity Cards, #1-5, to each group. Each group will read about its given topic and complete the corresponding activity. Allow 25-30 minutes for this.

3. Have each small group share their activity with the class and explain its meaning and relevance to their topic. Be sure they highlight the main points of their topic for the rest of the class.

4. Take a moment to discuss the following questions as a class:

    - How would living in China be different from where you live now? Are there certain aspects of life that you've always taken for granted? Has that changed now that you've read about China's state of affairs?
    - What steps have been taken to address known problem areas (e.g., economy, population, pollution, and poor technology)? Have they been effective? What makes policy effective or ineffective?
    - Do you think there are things people can do to help the situation?
    - Do you have any suggestions for industries, small businesses, communities, and students?

Part 2

1. Start by explaining to the class that they will now generate a cross-impact matrix based on what they have learned about China.

2. Show Transparency #1, *What is a Cross-Impact Matrix?* Ask the students to share their observations about the matrix. In the discussion, be sure to address the following questions:

   - Why is it set up in a grid?
   - What is the advantage of setting it up in a matrix form?
   - What does a cross-impact matrix have to do with the future?
   - How do you think this matrix could help in making a decision?
   - Why is it important to examine all of the cause-and-effect relationships before making a decision?

3. Now tell the students that you will be adding two more options to the matrix, "Join the Military" and "Relax and Take It Easy." Have the class figure out the relationships and fill in the appropriate spaces.

4. Take a moment to discuss the following questions:

   - Is it easy to see how the choices are interwoven?
   - Was it difficult to define some of the relationships between factors?
   - Were you surprised at some of the results?
   - How did the cross-impact matrix help or hurt your ability to make a decision? Did it make the issues very clear? Did it confuse you?
   - Was it more difficult to make a decision because issues were so interrelated? Were you sometimes forced to overlook some negative consequences in favor of positive ones?
   - Why do you think it is important to make a well-informed decision?

5. Divide the class back into the same five groups with the corresponding Handouts #1-5.

6. Show Transparency #2. Give each group four sheets of 11" x 17" paper. Ask the groups to discuss the questions among themselves. Have them summarize their answers in one or two sentences for each category to be used in the cross-impact matrix. Allow 10-15 minutes for this task.

7. On the class bulletin board, wall, or blackboard, draw a matrix with six rows across and six rows down, each space being at least 11" x 17". Label the columns and rows with these five topics: Air Pollution, Water Pollution, Population Growth, Technology, and Economy. Be sure to keep them in the same order across and down.

8. When the groups have finished their task, explain to the class that they will now construct a matrix using their answers. Going in any order is fine. Have groups send one member at a time to the front of the class to place his or her answer in the appropriate spot on the matrix, explaining the significance and relationship.

9. When the cross-impact matrix is complete, take a moment to discuss these questions as a class:

   - Is it easy to see how the five conditions are interwoven?
   - Was it difficult to define some of the relationships between factors?
   - Were you surprised at some of the results?

10. Now have the class use the cross-impact matrix in some mock decision-making. Have students pretend to be policymakers and remind them to consider *all* consequences to determine whether the decision is appropriate.

    - Would you ban all use of coal in China in favor of nuclear power?
    - Would it be a wise decision to lift all restrictions on population growth?
    - Would you continue to invest heavily in heavy industry?
    - Would you allocate a sizable portion of the national budget to make sure every person receives a quality education?
    - If it was cheaper to purify polluted water than to prevent pollution in the first place, which would you choose?

11. Debrief the activity and the lesson with the following questions:

    - How did the cross-impact matrix help or hurt your ability to make a decision? Did it make the issues very clear? Did it confuse you?
    - Was it more difficult to make a decision because issues were so interrelated? Were you sometimes forced to overlook some negative consequences in favor of positive ones?
    - Why do you think it is important to make a well-informed decision?
    - In your opinion, do you think China has made wise decisions in the past?

© SPICE

GROUP 1: WATER POLLUTION

Did you know ...

- ... that approximately 50 percent of the 18 million child deaths in the world each year are related to the poor quality of drinking water? (He, p. 177)
- ... that at least 80 percent of the disease in the entire world is water related? (He, p. 177)
- ... that China loses an estimated $40.8 million in fish yield each year due to water pollution? (Capannelli and Shrestha, p. 4)

Most of us take clean water for granted. We turn on the faucet and out flows water that is clean and safe enough to drink. We cook with this water; we wash our dishes and clothes in it; we even bathe in it. People in China also use water in many of these same ways. The difference is that their water is NOT clean. Much of the water in China contains an ominous mixture of pollutants like chemical and industrial waste, toxins like mercury and cyanide, chemical fertilizers, and even raw sewage! Would YOU use that water? Would you ever drink it? Would you wash your dishes and clothes in it? Would you cook your meals in that water? Would you bathe in it? Keep these questions in mind as you read the following passage.

In a country that comprises one-fifth of the world's population, clean water is an indispensable natural resource that is becoming more and more scarce. No single culprit is to blame; rather it is a combination of interrelated factors that has contributed to the contamination of China's water supply.

Industrial waste is a major component of the chemical pollutants teeming in the waters of China. Each year, an average of 80 million tons of contaminated industrial wastewater is dumped, 80 percent of which is dumped directly into rivers, lakes, and oceans untreated (He, p. 178). In Shanghai, one of the booming industrial cities of China, of the 5 million tons of wastewater produced, only 4 percent can be treated properly by their primitive facilities (He, p. 179). In addition, high-rise apartments in cities often have open roof-top water tanks built right next to factory chimneys spewing coal ashes and sulfuric smoke. These water tanks not only trap the ashes and dust particles from the smoke, they also catch the acid rain produced by the sulfur dioxide.

China has always relied heavily on using coal as an energy resource because it is so abundant and so cheap, but the environmental consequences of this practice are serious. Among the byproducts of burning coal are: sulfur dioxide, nitrogen dioxide, dust, ash, and methane gas. These pollutants not only contaminate the water, they also affect air quality, cause respiratory disease, and damage the ozone layer. The ambitious plans for economic development in China have spurred a flurry of activity in industry which has further amplified its generation of waste residue.

Another contributor to the problem of water pollution is agricultural byproducts. In an effort to feed a growing population, farmers are using more pesticides and fertilizers to promote quicker and more productive yields. Many of these chemicals end up in the water supply either from irrigation runoff into the nearby lakes and rivers, or from seeping into the underground water supply.

The third major water pollutant is raw sewage and trash, a factor created and exacerbated by a steadily growing population. Statistics recorded in 1985 revealed that in 300 of China's cities, only 3.6 percent of the garbage and sewage was properly treated and decontaminated (He, p. 180). The rest was dumped in the outskirts of these cities or into rivers, inevitably affecting the water supply. In addition to the industrial and agricultural chemicals, bacteria and viruses of all kinds thrive in these fetid waters and pose serious health risks for people. The amount of garbage and sewage generated by 1.2 billion people is a very real and serious threat to the environment because of the sheer number of people and also because of the nonexistent or woefully inadequate treatment facilities.

The level of technology in industry and agriculture is basic at best. Some places "treat" wastewater by pouring it into a hole in the ground and letting it seep underground slowly. Others attempt to "control" their wastewater output merely by letting it flow out slowly as opposed to all at once. It is not surprising that in some places, the water contamination is so severe that people and animals have been known to die on the spot after drinking the water (He, p. 181).

China currently lacks the technology, capital, and initiative to properly address the problem of pollution. Two major economic conditions deny China the proper technology to ensure efficient industry and agriculture. First, China is a poor country that lacks the capital to invest in better technology. More importantly, however, the economic system historically did not reward technological innovation, thereby removing the need and incentive for efficiency. Until proper economic measures are taken to address environmental issues, little will change. The World Bank recently observed that China now has an "unprecedented opportunity to better its quality of life. China's rapid economic growth makes clearer waters and bluer skies more attainable because it provides funds to buy cleaner technology and to make industries more energy-efficient"(Gao and Wan, 9/19/97). Now the World Bank and other lenders are making loans to China contingent upon the implementation of pollution control policies (Farnham, 8/23/93).

China has ambitious economic goals that will necessitate the adoption of more stringent environmental policies. In April of 1996, China's National Environmental Protection Agency (NEPA) declared "jeopardizing the environment" to be a serious offense (Zimmerman, et al., 9/9/96). They have enacted policies that primarily target the industrial sector and enforce the amount of waste discharge with a permit and penalty system. The success of this system is still to be determined, but a significant barrier lies in its way. A large part of China's industry is state-owned and -operated, which means that the government would effectively be penalizing itself for many of these environmental offenses. Furthermore, NEPA lacks the clout to enforce the policies and is often undermined by other more powerful government ministries and agencies that have other priorities (Zimmerman, et al., 9/9/96). The World Bank has suggested measures for improvement, some of which are: pricing water and energy correctly to discourage waste of resources, relocating dirty industries away from urban areas, increasing wastewater collection and treatment, and doubling the price of coal to compensate for costs of health and environmental damage (Gao and Wan, 9/19/97). It is assumed that pollution is closely related to the level of economic activity; the more the economy grows, the worse pollution becomes. Population growth has a similar effect on the environment. As China moves into the next century, what can people do to help alleviate these burdens on the environment?

GROUP 2: AIR POLLUTION

Did you know ...

- ... that damages from air and water pollution are estimated at 54 billion U.S dollars per year? That amounts to 8 percent of China's gross domestic product in 1995. (Gao and Wan, 9/19/97)
- ... that about 178,000 city dwellers die prematurely each year because of outdoor pollution? And about 111,000 people in the countryside die each year from indoor pollution stemming from coal-burning furnaces and stoves. (Gao and Wan, 9/19/97)
- ... that respiratory disease occurs at five times the rate in the United States and is the leading cause of death in China's urban areas? (Zimmerman, et al., 9/9/96)

Have you ever choked in the wake of a passing bus spewing black exhaust? Have you ever wondered what happens to the billowing brown clouds rising from factory smokestacks? For those of us who live in large cities, smog is most likely a familiar word. We know it as the brownish layer of haze that hovers above heavily populated and industrialized cities like Los Angeles and New York. What causes it? How does this unsightly and foul-smelling air affect us and the world in which we live? Keep these questions in mind as you read through the following passage.

These are pertinent questions in China, a country where air pollution is so severe that it has become an issue of international concern. Its sources are many and its consequences extend well beyond national boundaries. No single culprit is to blame; rather it is a combination of interrelated factors that has contributed to the polluted air of China.

The omnipresent practice of burning coal for energy production is China's most blatant source of air pollution. China has a virtually limitless supply of coal and has traditionally relied on this abundant natural resource to sustain its energy needs. Coal is the primary fuel for power plants, industry, and domestic heating and cooking (World Bank, p. 121). Unfortunately, the combustion technology used to burn coal is so outdated and inefficient that it generates significant amounts of residual waste and chemical byproducts. China further endangers the air quality by burning unwashed, low-quality coal, which produces even greater amounts of waste.

A common way to measure the severity of air pollution is to analyze the amount of suspended particulate matter present. This refers to the smoke, soot, dust, and liquid droplets from combustion that are in the air (World Bank, p. 121). Another way is to measure the presence of sulfur dioxide, another byproduct of burned coal in the air. According to a study sponsored by the Asian Development Bank in 1993, approximately 14 million tons of smoke-dust and 15.46 million tons of sulfur dioxide emissions are discharged annually in China (Capannelli and Shrestha, p. 7). That doesn't even include all of the carbon dioxide and other harmful chemicals being released.

Suspended particulate matter and sulfur dioxide endanger the environment in several ways. As both substances fall to the earth, much ends up in the water as well as on the ground. They pollute drinking water, damage agricultural soil, and destroy vegetation. Sulfur dioxide is the chemical that combines with rain, sleet, snow, hail, and fog to create the corrosive substance known as "acid rain." It makes freshwater so acidic that fish and other aquatic life in lakes and streams have trouble surviving. It also dissolves aluminum in the soil which eventually reaches the freshwater and poisons the aquatic life. On land, it damages vegetation and is so strong that it can even corrode the exteriors of buildings and other man-made structures like bridges (*Britannica Online*, "Acid Rain"). Although this type of pollution is concentrated in urban and industrial areas, it is a problem of international concern because it cannot be confined within national boundaries. A recent Japanese study concluded that as much as 30 percent of the acid rain in western Japan can be traced to Chinese coal-burning factories (Masaki, 1995).)

Constant exposure to unclean air is a leading cause of disease in China. It aggravates and causes a number of respiratory illnesses such as asthma, bronchitis, tuberculosis, and lung disease (He, p. 184). In Beijing, the annual mean of suspended particulate matter is 370 micrograms per cubic meter. Compare that to only 61 micrograms per cubic meter for New York City (World Bank, p. 121). In the city of Wuhan, an estimated 3500 people die each year as a direct result of air pollution! In that same city, over 20 million workdays are lost each year because of environmentally caused illness (He, p. 185). When employees are constantly ill and cannot go to work, the factories feel their absence in the form of decreased productivity and output, resulting in economic loss.

Ironically, though the economy seems to be a product of its contaminated environment, in many ways the contaminated environment is also a product of the economy. Two major economic conditions traditionally denied China the proper technology to ensure efficient energy production. First, China was always a poor country that lacked the capital to invest in better coal conversion technology. More importantly, however, the economic system historically did not reward technological innovation, thereby removing the need and incentive for efficiency. With China's rapidly developing market economy, greater production and output are now aggressively pursued. This is often achieved at the expense of the environment, assuming that higher output leads to more residual waste. To discourage this short-sighted approach to development, the World Bank and other lenders are making loans to China contingent upon the implementation of pollution control policies (Farnham, 8/23/93). The World Bank recently observed that China now has an "unprecedented opportunity to better its quality of life. China's rapid economic growth makes clearer waters and bluer skies more attainable because it provides funds to buy cleaner technology and to make industries more energy-efficient" (Gao and Wan, 9/19/97).

In April of 1996, China's National Environmental Protection Agency (NEPA) declared "jeopardizing the environment" to be a serious offense (Zimmerman, et al., 9/9/96). They have enacted policies that primarily target the industrial sector and enforce the amount of waste discharge with a permit and penalty system. The success of this system is still to be determined, but a significant barrier lies in its way. A large part of China's industry is state-owned and -operated, which means that the government would effectively be penalizing itself for many of these environmental offenses. Furthermore, NEPA lacks the clout to enforce the policies and is often undermined by other more powerful government ministries and agencies that have other priorities (Zimmerman, et al., 9/9/96). The World Bank has suggested measures for improvement, some of which are: phasing out lead in gasoline by the year 2000, doubling the price of coal to compensate for health and environmental damage associated with pollution, substituting natural gas for coal in the cities, and relocating dirty industries away from urban areas (Gao and Wan, 9/19/97).

China has ambitious economic goals that will necessitate the adoption of more stringent environmental policies. It is assumed that pollution is closely related to the level of economic activity; the more the economy grows, the worse pollution becomes. Population growth has a similar effect on the environment. As China moves into the next century, what can people do to help alleviate these burdens on the environment?

© SPICE

GROUP 3: POPULATION GROWTH

Did you know ...

- ... that one fourth of all urban residents in China have less than four square meters of living space? (Smil, p. 95)
- ... that the inhabited part of China is roughly half the size of the inhabited part of the United States, but it supports five times as many people? (Fairbank, p. 5)
- ... that several months each year in China, over 300 million people have trouble finding enough fuel to cook three simple meals a day? (Smil, p. 101)

Do you share a bedroom with your entire family? Do you search for firewood to cook your meals every day? Do you often go hungry because there's not enough food? Most likely, you have answered "no" to each of these questions, but these are real issues that face many people in China every day. They are troubling indicators of an already crowded nation struggling to sustain its steadily growing population. Keep these questions in mind as you read the following passage.

The topic of population growth has always been a source of great controversy in China. Most experts regard uncontrolled growth as unsustainable and an instrument of China's certain demise if not properly addressed. Some experts disagree, and embrace population growth as a positive impetus for human inventiveness and adaptation. They believe that the earth is capable of maintaining an ecological balance to accommodate the pressures exacted by a large population (Smil, p. 6). From an environmental and economic perspective, however, it is widely accepted that overpopulation is indeed a daunting threat to China's future, straining natural resources, causing food shortages, dwindling per capita resources, creating shortages of capital, and destroying the ecological balance. It leads to economic pressures such as falling production and efficiency, unemployment, and lower accessibility of education (He, p. 1).

China was historically an agrarian society with a strong dependence on the land to produce enough food to feed its people. Families believed that the easiest and most logical way to expand the labor force and maximize production was to have many children. However, these large families also had the added pressure to produce more to feed all of their children.

The situation in China today is very similar, only on a much grander scale. The country is currently faced with the enormous challenge of feeding 23 percent of the world's population from only 7 percent of the world's arable land (Fairbank, p. 5, and Capannelli and Shrestha, p. 2). As John King Fairbank explains, "dense population provides both the incentive for intensive land use and the means" (p. 16). Unfortunately, the environmental consequences for such intensive land use are serious and often irreversible. The amount of arable land is decreasing steadily due to environmental damage. Traditional farming methods were abandoned in favor of others that produced higher yields in shorter periods of time. Current methods involve excessive reliance and improper use of synthetic fertilizers and pesticides, single-crop farming, and lack of organic recycling. Ironically, the long-term effects of these short-term solutions are destroying the very land being cultivated. Synthetic fertilizers and pesticides contaminate the soil; single-crop farming strips the soil of nutrients; lack of organic recycling deprives the soil of essential natural fertilizers. Land is also greatly affected by other forms of pollution. Crops are damaged by acid rain, and irrigation water is often laden with toxic chemicals dumped by factories located upstream. As the population grows, the food situation will become increasingly urgent as China struggles to produce more food from less land for more people (He, p. 140).

Overpopulation has a tremendous direct impact on the environment in terms of the amount of human and material waste produced. One of the major water pollutants in China is raw sewage and trash, a factor created and exacerbated by a steadily growing population. Statistics recorded in 1985 revealed that in 300 of China's cities, only 3.6 percent of the garbage and sewage was properly treated and decontaminated (He, p. 180). The rest was dumped in the outskirts of these cities or into rivers, inevitably affecting the water supply. Bacteria and viruses of all kinds thrive in these fetid waters and pose serious health risks for people. The amount of garbage and sewage generated by 1.2 billion people is a very real and serious threat to the environment, because of the sheer number of people and also because of the nonexistent or woefully inadequate treatment facilities.

Air quality is also at risk with greater numbers of people. China's most blatant source of air pollution is the omnipresent practice of burning coal for energy production. Coal is the primary fuel for power plants, industry, and domestic heating and cooking (World Bank, p. 121). Unfortunately, the combustion technology used to burn coal is so outdated and inefficient that it generates significant amounts of residual waste and chemical byproducts which contaminate the environment. These include smoke, soot, dust, and sulfur dioxide, a component of acid rain. They are the principal cause of China's extraordinarily high incidence of respiratory disease (Zimmerman, et al., 9/9/96).

Although China is one of the few countries in the world well-endowed with energy resources (mostly coal), its huge population reduces the impressive totals to much more modest per capita rates (Fairbank, p. 100). For this reason, in some places there is actually a shortage of fuel supply. Some people must search for fuel to burn in their stoves and end up stripping the land of much of its useful vegetation. Farmers no longer recycle inedible stalks back into the soil as fertilizer because they are in such desperate need for cooking fuel that they choose to burn them instead. Practices such as this have far-reaching consequences, among them, deforestation, desertification, soil erosion, and loss of critical soil nutrients.

An emphasis on efficiency is absolutely necessary if China expects to meet the growing needs of its expanding population. China currently

© SPICE

lacks the capital, technology, and initiative to properly address the pollution problems associated with overpopulation. Sanitation treatment and garbage disposal facilities, agricultural methods, energy production, and resource management are handled inefficiently and are essentially short-term solutions with environmentally harmful long-term consequences.

Chinese peasants with large families traditionally had little desire for labor-saving inventions because mechanization represented direct competition with human labor (Fairbank, p. 15). Technology and efficiency meant fewer jobs for more people. Industry is also plagued by inefficiency for two economically based reasons. First, China is a poor country that lacks the capital to invest in better technology. More importantly, however, the economic system historically did not reward technological innovation, thereby removing the need and incentive for efficiency. As the demand for production increases to keep up with the population, efficiency will be paramount to the success of China's economic development.

Currently, there is an overabundance of undertrained and poorly educated workers. Over one fourth of the population is illiterate (Fairbank, p. 409); and just 1.8 percent of the people have a college or university degree (Smil, p. 91). The cost of educating such a huge population is a formidable task, and as a result, education is of limited availability and quality for most people. The Chinese quest for modernization cannot happen without a substantial increase in the educational level of its people (Smil, p. 91).

Jobs for unskilled workers are decreasing; and to make this matter worse, estimates suggest that over two thirds of the population is under the age of thirty, further adding to the potentially massive employment shortage (He, p. 9). Furthermore, the disproportionately young population is gradually turning into a disproportionately old population with an increased average life expectancy, which will have certain social and economic implications for the future (He, p. 15).

China will need to concentrate on making its growth sustainable by properly managing the environment and economy to accommodate the pressures presented by a large population. As China moves into the next century, what can people do to help alleviate these burdens on the environment?

GROUP 4: TECHNOLOGY

Did you know ...

- ... that in rural China, over forty percent of the production teams have no electricity? (He, p. 70)
- ... that while thermally inefficient household stoves waste 500-600 million tons of firewood and stalks annually, many people are still short of fuel 3-6 months each year? (He, p. 70)
- ... that it has been estimated that it would take $180 billion just to introduce elementary mechanization into agriculture, not to mention anything more sophisticated? (He, p. 103)

We often associate the word "technology" with a certain genre of items, such as computers, cellular phones, fax machines, and satellite TV. However, modern technology is intrinsic to our everyday lives in ways that are not always so obvious. Imagine life with no electricity, no central heating, no plumbing, no sewage treatment. What if our stoves and homes were heated by firewood? If chemical plants dumped their waste in our backyard and in our drinking water supply? If our toilets flushed directly into the fishpond behind our house? Keep these questions in mind as you read the following passage.

These scenarios are common in China because modern technology has not been readily available or easily accessible. Inadequate technology exists in both rural and urban China, having serious repercussions on the economy and the environment. While technology is regarded as a key factor in modernization, the leaders of communist China had been reluctant to join economic forces with the non-communist world. Western technology remained a low priority in China for the sake of preserving and protecting the political sanctity afforded by closed borders.

As China appeared to lag farther and farther behind the rest of the world in terms of modernization, two of its more pragmatic leaders, Deng Xiaoping and Zhou Enlai, stepped in. They attributed China's traditional ways to its isolation and its inability to draw on developments in science and technology to which the rest of the world had access, and thus they formulated the Four Modernizations Campaign (Garver, p. 193). It targeted four areas in dire need of improvement: industry, agriculture, science and technology, and national defense (Garver, p. 194). Zhou died in 1976, but Deng Xiaoping carried on with their original plans and formally implemented the Four Modernizations Campaign in 1978.

Starting that year, as China attempted to quadruple its economic output by the year 2000, it quickly became apparent that they lacked the proper infrastructure to support such rapid and expansive growth. The inefficient use of energy resources and outdated technology resulted in a severe energy shortage as well as a tremendous amount of environmental damage associated with loosely regulated development (He, p. 66).

© SPICE

When China opened its doors, its primary economic goal was to bring in foreign capital and technology (He, p. 113). In theory, it seemed to be the answer to China's technological deficiencies, but in practice, it backfired. Instead of importing beneficial technology that promoted efficiency in problem areas like power generation and waste management, they imported technology that created a surplus in consumer goods and services. Consumption became the focus, with heavy investment aimed at projects like luxury hotels, expensive bars and nightclubs, amusement parks, consumer goods, and fancy household appliances (He, p. 114).

By 1980, it became necessary to concentrate on making the transition from an extensive mode of development to an intensive mode. Extensive development expands production by duplicating existing patterns of production and increasing inputs. On the other hand, intensive development expands production by utilizing resources more efficiently, cutting costs, and increasing productivity. In recent decades, China followed an extensive mode of development made possible by large Soviet loans and by the spartan Maoist living standards that emphasized consumption driven strictly by necessity. Resources were used with little thought to costs or productivity and the environment was largely ignored (Garver, p. 195).

In a country with 1.2 billion people, technology and efficiency had always meant fewer jobs for more people. Chinese peasants with large families traditionally had little desire for labor-saving inventions because mechanization represented direct competition with human labor (Fairbank, p. 15). Now, with the restrictions on population growth limiting families to one child, efficiency is not only desired, it is mandatory for survival since farmers now need machines to bear the tremendous workload that large families once carried.

Industry is also plagued by technological shortcomings. The majority of inefficiency in the industrial sector is in the form of wasted energy and materials. Obsolete machinery and processing techniques yield significant amounts of residual waste, much of which end up hurting the environment in some way. In the past, two major economic conditions denied China the proper technology to ensure efficient production. First, China has always been a poor country that lacked the capital to invest in better technology. More importantly, however, the economic system historically did not reward technological innovation, thereby removing the need and incentive for efficiency. Efficiency will be paramount to the success of China's development if policymakers wish to achieve high output with low pollution. Efficiency, in turn, will exist only when the appropriate technology is updated and properly implemented.

In cases where foreign technology was imported and implemented in key industrial areas, the results have been mixed. The limited technological expertise and low educational levels of Chinese factory workers makes for inefficient use of new technology (He, p. 121, and Garver, p. 205). Poor management and limited energy supplies can also hamper productivity (Garver, p. 217). In fact, in some factories, after modern equipment was introduced, the number of staff increased rather than decreased (He, p. 120). Without the proper infrastructure to absorb imported technology, the benefits are limited (He, p. 121).

The detrimental effects of inferior technology become evident in the progressive deterioration of the environment. Air and water quality are directly affected by the amount of waste produced by inefficient industries. The practice of burning coal for energy production is China's most blatant source of air pollution. Coal is the primary fuel for power plants, industry, and domestic heating and cooking (World Bank, p. 121). Unfortunately, combustion technology used to burn coal is so outdated and inefficient that it generates significant amounts of residual waste and chemical byproducts. Smoke, soot, and dust fill the air and pose serious health risks to those who must breathe the unclean air. The sulfur dioxide released into the air combines with rain, sleet, snow, hail, and fog to create the corrosive substance known as "acid rain." It endangers aquatic and plant life, and is so strong that it can even corrode the exteriors of buildings and other man-made structures like bridges (*Britannica Online*, "Acid Rain"). Acid rain is an issue of international concern because it cannot be confined within national boundaries. A recent Japanese study concluded that as much as 30 percent of the acid rain in western Japan can be traced to Chinese coal-burning factories (Masaki, 1995).

Water quality has also suffered greatly because of poor technology. Without the proper technology needed to treat industrial and human waste, much of it ends up being dumped into bodies of water untreated. In Shanghai, one of the booming industrial cities of China, of the 5 million tons of wastewater produced, only 4 percent can be treated properly by its primitive facilities (He, p. 179). Other studies indicate that the amount of garbage and sewage generated by 1.2 billion people is a very real and serious threat to the water quality, because of the sheer number of people, and also because of the nonexistent or woefully inadequate treatment facilities. Statistics recorded in 1985 revealed that in 300 of China's cities, only 3.6 percent of the garbage and sewage was properly treated and decontaminated (He, p. 180). The rest was dumped in the outskirts of these cities or into rivers, inevitably affecting the water supply.

With China's rapidly developing market economy, greater production and output are now aggressively pursued. This is often achieved at the expense of the environment, assuming that higher output leads to more residual waste. To discourage this short-sighted approach to development, the World Bank and other lenders are making loans to China contingent upon the implementation of pollution control policies (Farnham, 8/23/93). The World Bank recently remarked that China's "rapid economic growth makes clearer waters and bluer skies more attainable" because it provides funds to buy cleaner technology and to make industries more energy-efficient. (Gao and Wan, 9/19/97). It is assumed that pollution is closely related to the level of economic activity; the more the economy grows, the worse pollution becomes. Population growth has a similar effect on the amount of pollution. Proper implementation of new technology is needed to rescue China's environment from further degradation. Gross inefficiency and inadequate technology have left their mark on China's environment in the form of air and water pollution. As China moves into the next century, what can people do to help alleviate these burdens on the environment?

GROUP 5: ECONOMY

Did you know ...

- ... that China is the world's third largest producer and consumer of energy? (Smil, p. 100)

- ... that in 1995, Hong Kong, Macau, and Taiwan contributed 63 percent of all foreign direct investment into China. (Mastel, p. 17)

- ... that at its current growth rate, China has the potential to become the largest economy in the world as early as the year 2010! (Mastel, p. 15)

Imagine living in a poor country where few people are educated beyond the high school level. What if your government decides to completely withdraw from all contact with the outside world. No foreign cars, no foreign goods, not even any foreign ideas! Do you think your country would thrive on its own? Do you think you would benefit from foreign goods? What about foreign technology? What do you think are the advantages and disadvantages of the international exchange of goods and information? Keep these questions in mind as you read the following passage about China.

China's entrance into the world economy in the late 1970s is considered by some to be the greatest economic achievement in the latter half of the twentieth century (Mastel, p. 9). Deng Xiaoping and Zhou Enlai, two of China's leaders at that time, recognized the shortcomings of the isolated Chinese economy and sought to revive the faltering economy by opening its doors to the outside world. They established ambitious economic goals and began to lead the country towards modernization and prosperity, paying little attention to the environmental consequences of unchecked development. Rapid growth combined with a traditionally lax attitude towards the environment are now forcing China to deal with widespread air and water pollution. China has since adopted measures to achieve sustainable development by importing foreign technology designed to make industry more efficient, thereby decreasing the amount of pollution.

In the early 1970s, it became apparent to Deng Xiaoping and Zhou Enlai that China lagged far behind the rest of the world in terms of modernization. They traced the lag to China's isolation, blaming China's backwardness on its inability to draw on developments in science and technology that were common to the rest of the world (Garver, p. 193). They argued that unless China started to assimilate the scientific and technological discoveries of the West, it would fall further and further behind (Garver, p. 194).

Together, Deng and Zhou drafted the Four Modernizations Campaign. It targeted four areas in dire need of improvement: industry, agriculture, science and technology, and national defense (Garver, p. 194). The most important aspect of the entire campaign was the objective to transition from an extensive to an intensive mode of development. Extensive development expands production by duplicating existing patterns of production and increasing inputs. On the other hand, intensive development expands production by utilizing resources more efficiently by cutting costs and increasing productivity. In the recent decades, China followed an extensive mode made possible by large Soviet loans and by the spartan Maoist living standards that emphasized consumption driven strictly by necessity. Resources were used with little thought to costs or productivity and the environment was largely ignored (Garver, p. 195). Zhou died in 1976, but Deng Xiaoping carried on with their original plans and formally implemented the Four Modernizations Campaign in 1978.

In the past, two major economic conditions denied China the proper technology to ensure efficient production. First, China has always been a poor country that lacked the capital to invest in expensive technology. More importantly, however, the economic system historically did not reward technological innovation, thereby removing the need and incentive for efficiency.

Currently, the state still plays a major role in directing or controlling economic activity. Chinese leaders seem comfortable with an economy that attempts to merge some elements of communism with some elements of capitalism (Mastel, pp. 4-5). With China's rapidly growing market economy, greater production and output are now aggressively pursued, often at the expense of the environment, assuming that higher output leads to more residual waste. Some experts feel that even if China had the capital, technology, and skilled labor force, it couldn't remove the environmental constraints facing China's modernization (Smil, p. 68).

The detrimental effects of inferior technology become evident in the progressive deterioration of the environment. Air and water quality are directly affected by the amount of waste produced by inefficient industries. The practice of burning coal for energy production is China's most blatant source of air pollution. Coal is the primary fuel for power plants, industry, and domestic heating and cooking (World Bank, p. 121). Unfortunately, combustion technology used to burn coal is so outdated and inefficient that it generates significant amounts of residual waste and chemical byproducts. Smoke, soot, and dust fill the air and pose serious health risks to those who must breathe the unclean air. The sulfur dioxide relased into the air combines with rain, sleet, snow, hail, and fog to create the corrosive substance known as "acid rain." It endangers aquatic and plant life, and is so strong that it can even corrode the exteriors of buildings and other man-made structures like bridges (*Britannica Online*, "Acid Rain"). Acid rain is an issue of international concern because it cannot be confined within national boundaries. A recent Japanese study concluded that as much as 30 percent of the acid rain in Western Japan can be traced to Chinese coal-burning factories (Masaki, 1995).

Water quality has also suffered greatly because of poor technology. Without the proper technology needed to treat industrial and human waste, much of it ends up being dumped into bodies of water untreated. In Shanghai, one of the booming industrial cities of China, of the 5 million tons of wastewater produced, only 4 percent can be treated properly by its primitive facilities (He, p. 179). Other studies indicate that the amount of garbage and sewage generated by 1.2 billion people is a very real and serious threat to the water quality, because of the sheer number of pe :, and also because of the nonexistent or woefully inadequate treatmen facilities. Statistics recorded in 1985 revealed that in 300 of China's cities, only 3.6 percent of the garbage and sewage was properly treated and decontaminated (He, p. 180). The rest was dumped in the outskirts of these cities or into rivers, inevitably affecting the water supply.

The economic implications of an unclean environment are manifested in a variety of ways. Health problems such as respiratory disease and hepatitis are associated with a lifetime of exposure to unclean air and water. Each year, millions of work hours are lost to environmentally caused illnesses (He, p. 185). Soil quality can be diminished greatly by chemical pollutants, which in turn affect the harvest conditions and food production. Excessive water pollution has even hurt the fishing industr

Though the economy seems to be a product of its contaminated environment, in many ways the contaminated environment is also a product of the economy. Until proper economic measures are taken to address environmental issues, little will change. China currently plans to spend 1.5 percent of its gross domestic product on the environment, but it would take 5-10 percent to make a real impact on the situation (Zimmerman et al., 9/9/96). In addition, the World Bank and other lenders are now making loans to China contingent upon the implementation of pollution control policies (Farnham, 8/23/96).

In April of 1996, China's National Environmental Protection Agency (NEPA) declared "jeopardizing the environment" to be a capital offense. (Zimmerman et al., 9/9/96). They have enacted policies that primarily target the industrial sector and enforce the amount of waste discharge with a permit and penalty system. The success of this system is still to be determined, but a significant barrier lies in its way. A large part of China's industry is state-owned and -operated, which means that the government would effectively be penalizing itself for many of these environmental offenses. Furthermore, NEPA lacks the clout to enforce the policies and is often undermined by other more powerful government ministries and agencies that have other priorities (Zimmerman et al., 9/9/96).

New economic incentives are now generating a degree of environmental awareness among industries, but less so in the agricultural sector. China has ambitious economic goals that will necessitate the adoption of more stringent policies with greater accountability overall. It is assumed that pollution is closely related to the level of economic activity; the more the economy grows, the worse pollution becomes. As China moves into the next century, what else can people do to help alleviate these burdens on the environment?

activity cards #1 and #2

GROUP 1: Water Pollution

Make a poster that illustrates the issue of water pollution in China and its interrelationship with at least two of the four issues and trends discussed.

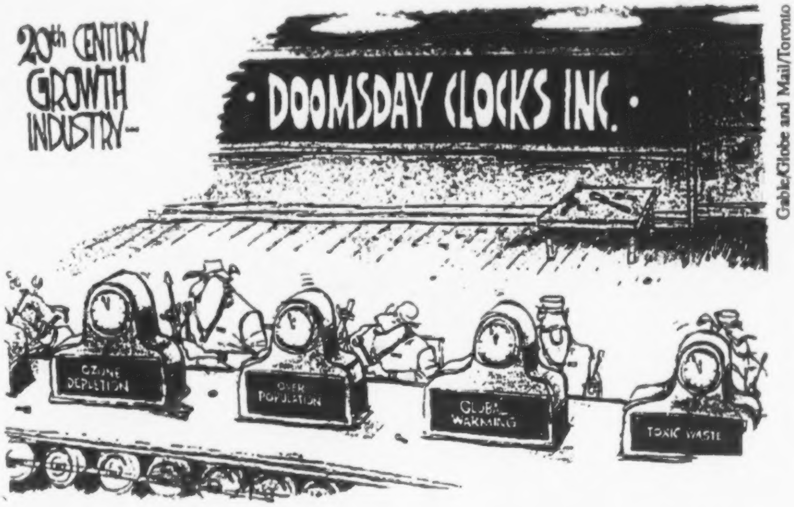
GROUP 2: Air Pollution

Make a poster that illustrates the issue of air pollution in China and its interrelationship with at least two of the four issues and trends discussed.

© SPICE

GROUP 3: Population Growth

Political cartoons are a visual way to express, criticize, and satirize different points of view through humor, symbols, and illustrations. Study the cartoon below and write a brief paragraph on its meaning and how it relates to China. Address only the issues that you read about.


20th CENTURY GROWTH INDUSTRY—
· DOOMSDAY CLOCKS INC. ·
OZONE DEPLETION
OVER POPULATION
GLOBAL WARMING
TOXIC WASTE
Gable/Globe and Mail/Toronto

(Gable/Singapore/Cartoonists & Writers Syndicate)

As a group, try drawing a political cartoon that expresses your opinions on China's population growth.

BEST COPY AVAILABLE

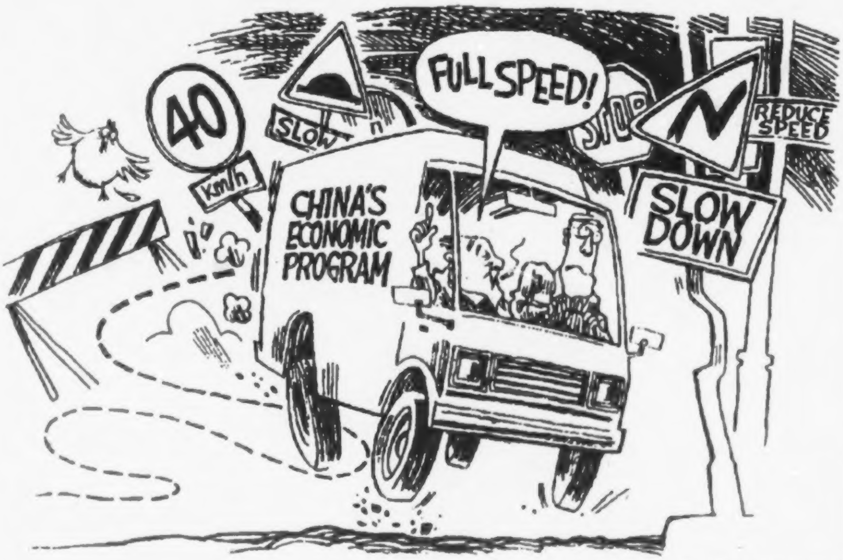
GROUP 4: Technology

Invent and draw a machine that will solve one of China's environmental dilemmas. Present your "proposal" to the Chinese government. The following information will need to be provided:

- How much does it cost?
- Who will pay for it?
- How does it work?
- How effective will it be?
- Why do you think this is the best option?

GROUP 5: Economy

Political cartoons are a visual way to express, criticize, and satirize different points of view through humor, symbols, and illustrations. Study the cartoon below and write a brief paragraph on its meaning and how it is related to China's environment. Address only the issues that you read about.


40
km/h
SLOW
FULL SPEED!
STOP
REDUCE SPEED
SLOW DOWN
CHINA'S ECONOMIC PROGRAM

Heng/Lianhe ZaoBao/Singapore

(Cartoonists & Writers Syndicate)

As a group, try drawing a political cartoon that expresses your opinions on China's economy.

transparency #1

WHAT IS A CROSS-IMPACT MATRIX?

> "The cross impact matrix is a method for thinking about the future that is designed to help clarify interrelationships between issues, events or trends. Each of the trends is entered on both horizontal and vertical positions of the matrix. This method practices projecting cause and effect relationships in future thinking"
>
> —Janet McCumsey, *Exploring the Future*, p. 6.

Topic: Plans for after high school graduation

How will this➜ affect this? ➜	Go to College	Get Married & Have Kids	Find a Job	Travel
Go to College		If I am married, I may not have enough money to pay for college.	If I find a great job and make a lot of money, I may not have much desire to go to college afterwards.	Taking time to travel may give me a clearer idea of what I would want to study in college.
Get Married & Have Kids	It may be difficult to be married as a full-time student. I'd miss out on a large part of the college experience.		I will need to earn money to support ourselves and possibly a family.	I should take advantage of the opportunity to travel before assuming the enormous responsibilities of marriage and family, but I'd need money.
Find a Job	A college degree may give me more earning power and make me more marketable.	If I am married, I may be forced to find a job to help pay the bills.		It would probably be good to travel before I start working because it may be hard to take time off from work.
Travel	College will require a lot of money and time so my traveling may be limited.	I may not have enough money to spend on traveling, but it would be fun to go with my spouse.	If I find a job, I can save money to go on a nice trip, but it might be hard to get time off for it.	

(Adapted from Janet McCumsey, *Exploring the Future*, p. 6)

MAKING A CROSS-IMPACT MATRIX

AIR POLLUTION

WATER POLLUTION

POPULATION GROWTH

TECHNOLOGY

ECONOMY

Take a look at the five categories above. With your group members, discuss the following two questions. Summarize your answers into one or two sentences for each of the other four categories to be used in the cross-impact matrix. Write your answers down on four separate pieces of paper, one for each category. Make your letters as large and legible as possible.

- How does your topic affect each of the other four conditions?
- What is your topic's relationship with each of the other four conditions?

THE DECISION MAKER'S FLOWCHART

Organizing Questions

- What are some economic characteristics of China's eight regions?
- How can the decision maker's flowchart help us study the future of these regions?

Introduction

The decision maker's flowchart is a tool that futurists sometimes use to analyze alternatives before making a decision. A flowchart clarifies the decision-making process by visually juxtaposing alternatives and their consequences. This often makes it simpler to evaluate choices before making a decision.

This lesson is an introduction to the decision maker's flowchart. It uses the geographic and economic regions of China as a case study of how using a flowchart can help one make decisions about the future.

Each student will learn about the geography and the general economy of China by reading a brief profile of one of China's 32 provinces, municipalities, or autonomous regions. These profiles highlight certain economic characteristics: industry, agriculture, infrastructure, and tourism. Using this information, students will then gather into small groups according to their designated geographic region and create a decision maker's flowchart to choose an appropriate economic investment project for their region.

Objectives

knowledge

- to introduce students to key issues and concepts surrounding issues in China's economy
- to introduce students to the geography of China
- to familiarize students with the futurists' tool of the decision maker's flowchart

attitude

- to understand the complexity of decision making and the importance of evaluating alternatives and consequences before making a decision
- to help students understand the role of goals, consequences, and alternatives in decision making

skill

- to work in small groups to make decisions
- to use analytical thinking skills in determining consequences
- to create a decision maker's flowchart

lesson five

Materials

- Resource Cards #1a-e, #2a-c, #3a-g, #4a-f, #5a-d, #6a-c, #7a-b, and #8a-b (32 Resource Cards, one per student)
- Activity Cards #1-3, one set of cards per group (8 groups)
- Transparency #1, *What is a Decision Maker's Flowchart?*
- Transparency #2, *Making the Flowchart*
- Map #1, *Cutout Map of China*
- Map #2, *Administrative Map of China*
- ample quantity of butcher paper
- markers, crayon, or colored pencils
- tape
- scratch paper

Time

- At least 3 class periods.

China is divided into various provinces, municipalities, autonomous regions, and special administrative regions. Each of these belongs to one of the eight generally accepted regions of China: Northwest, Northeast, North, Central-South, South, Southwest, the Sichuan Basin, and the Tibetan Plateau. These regions have been divided along mountain ranges and other topographical features such as basins, plains, rivers, and plateaus. To simplify the lesson, 32 provinces, municipalities, autonomous regions, and 1 special administrative region are covered, and two have been left out. Those not covered are Macau and Taiwan, which, for various reasons, would unnecessarily complicate the lesson.

The lesson is divided into two parts. In Part 1, students will work by themselves, each learning about one of the 32 provinces, municipalities, or autonomous regions. In Part 2, they will form into groups according to the region where their province is located. Members of a group will then compare their respective economies and use a decision maker's flowchart to select the most appropriate economic investment for the region as a whole.

Teacher Preparation

1. Make one copy of each Resource Card. If you have more than 32 students, make extra copies of 7a, 7b, 8a, and 8b.
2. Make 8 copies of each Activity Card and Map #2.
3. Make one transparency of each: Map #1, Transparencies #1 and #2.
4. Use an overhead projector to project the transparency of Map #1 onto butcher paper taped to the wall. Try to make the image as large as possible (5-6 feet wide is recommended).
5. Trace the entire map with a thick marker. Label each province accordingly to make it easier to identify later.
6. Cut out each province, municipality, autonomous region, and special administrative region. Remember to leave ample space for illustration of the sea off the east coast. This will take at least 45 minutes to prepare. If you have willing students, by all means have them help trace and cut!

Procedure Part 1

1. Before you begin, match each map cutout to its corresponding Resource Card. This will ensure a more efficient lesson.

2. Set the context for this activity by summarizing the above information for the students.

3. Begin this lesson by generating a class discussion around the following questions:

   - What is a region? (*The Merriam Webster's Collegiate Dictionary definition is "a broad geographical area distinguished by similar features."*)
   - Can you think of different features that can distinguish one area from another? (*geographic location, history, climate, topography, economy, food, language, culture, etc.*)
   - Can you think of any regions where you live? (*For example, San Francisco is divided into many smaller regions like North Beach, South of Market, the Sunset, etc.*)
   - How is your own country divided into regions? (*The United States has certain distinct regions, some of which are: the Pacific Northwest, New England, the Southwest, the South, and the West Coast.*)
   - How are these regions different? What distinguishes one region from another?

4. Distribute one resource card to each student with its corresponding map cutout. They will work on Part 1 individually. If you have more than 32 students, assign extra students to Resource Cards 7a, 7b, 8a, and 8b.

5. Give students about 10 minutes to read about their assigned area.

6. After they have finished reading, have each student use crayons or colored pencils to illustrate the map of their province, municipality autonomous, or special administrative region. They must highlight characteristics of their area such as: population, density, topography, climate, resources, and economic characteristics. Each map should be a pictorial representation of the information they have read and should be illustrated as much as possible. Allow 30 minutes for this activity.

   ★ Students with small municipalities or islands should draw a blowup map on a separate piece of paper.

7. Now students will form groups according to the number on their resource cards. The groups are divided into the 8 regions of China. Distribute a copy of Map #2 to each group for reference. Each group will tape their picture maps together to form a regional map. After this is completed, have the group outline their region with a thick marker. Instruct groups to label their regions as follows:

   Group 1: Northwest
   Group 2: Northeast
   Group 3: North
   Group 4: Central-South
   Group 5: South
   Group 6: Southwest
   Group 7: Sichuan Basin
   Group 8: Tibetan Plateau

8. Give the groups about 10 minutes to discuss their observations of their regional map. Have each group member write down one unifying feature of their region.

9. The 8 regional maps fit together like a puzzle to form a large map of China. Map #2 may be used as a reference. Have students tape their regional map to the wall starting with Group 3: North. Explain to students that the regions are named according to their position relative to Beijing, the capital of China. After the region has been taped up, each group member will share one unifying characteristic of their region.

   ★ Students with the blowup maps of municipalities or islands can link their picture map with the puzzle map using a piece of string.

10. When the entire map of China is completed, engage the students in a discussion about their observations of the map.

    - Are certain regions more wealthy than others? Why do you think these differences exist?
    - Is there any relation between the size of the province and the population density?
    - Which provinces are the heaviest populated?
    - Which are the least populated?
    - Do any of the areas share similar resources?
    - Do any of the areas share similar economies?
    - What are some commonly grown crops?
    - What are some major industries?

Part 2

1. Show Transparency #1, *What is a Decision Maker's Flowchart?* Ask the students to share their observations about the flowchart. In the discussion, be sure to address the following questions:

   - What is the decision to be made?
   - What are the alternatives?
   - What are the consequences? Be sure to emphasize the difference between a fact and a consequence. For example, "I like children" is a fact, not a consequence. It would not be a result of being a camp counselor. "I may learn a lot about children" is a consequence because it is a possible result of being a camp counselor.

2. Have students brainstorm for other job possibilities and potential consequences to give them a feel for the process.

3. Distribute Activity Card #1 to each group. Allow 30 minutes for the groups to decide on their sector.

4. When students have decided on a particular sector, distribute Activity Cards #2 and #3. For advanced-level students, you may wish to eliminate the "Things to Consider" section at the bottom of Activity Card #2.

5. Show Transparency #2, *Making the Flowchart*. Ask students to refer to Activity Card #2 while you explain the steps to making a flowchart. Inform students that they will now use Activity Card #2 to help them make a flowchart to decide on a suitable investment project within one economic sector. Then they must fill out Activity Card #3 to record their decision. Leave Transparency #2 on the overhead during group work so students may use it as a guideline. Allow 20 to 30 minutes for this activity.

6. Have one member from each region present their flowchart and signed investment contract to the class. He or she will briefly summarize the group's activity and their decision.

7. Debrief this lesson by generating a class discussion around the following questions:

   - When trying to decide on a sector for investment, was it difficult to make a choice based on a list of questions? Why?
   - When choosing a specific project, was it helpful to use a decision maker's flowchart? Why?
   - What are the economic advantages and disadvantages of regional divisions?
   - Did the flowchart make it easier for you to make a choice? Or did it make it harder? How?
   - How did the flowchart affect your ability to make a decision?
   - Do you think you made a better decision than you would have made without a flowchart?

Optional: You may wish to follow up this lesson with some practical applications for the flowchart. Students can create flowcharts for decisions that need to be made in their own lives.

XINJIANG AUTONOMOUS REGION

Capital: Urumqi
Population: 16.6 million
Density: 10 people per sq. km

Climate:
Long winter and summer with extreme temperatures. Short spring and autumn.

Topography:
There are 3 major mountain ranges. One lies along the southern border. Another makes up much of the northeastern part of the region. Another runs east-west across the middle of the region. Large basins and deserts, oases, and rivers cover the rest of Xinjiang.

Resources:
Xinjiang has rich coal, petroleum, gold, and jade reserves. It also has rich potential for hydropower, solar power, and wind power. Xinjiang is the largest region in China, with 22 percent of all pastureland in the country. It also has tremendous potential for fish breeding and timber production.

ECONOMY

Industry:
- Industrial development in Xinjiang is relatively recent.
- The most important heavy industry is petroleum extraction and processing.
- Other heavy industries: iron, steel, coal, natural gas
- Important light industrial and textile products are wool, wool products, salt, and handicrafts.

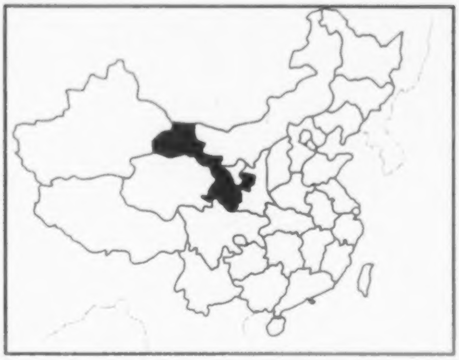
Agriculture:
- Most of the labor force is engaged in agriculture.
- Major grain crops: wheat, maize (sown on 61 percent of farmland)
- Major cash crops: cotton, sugar beets, fruits
- 89 percent of farmland is irrigated, most by the traditional method of digging underground wells and channels.
- Livestock raised: sheep, goats
- Xinjiang leads the country in sheep and goat production.

Infrastructure:
- Moderate level of foreign capital: U.S.$188 million
- Its remote inland location and relatively weak infrastructure are strong deterrents for foreign investors. Infrastructural insufficiencies will become more apparent when further development places greater strains on the overburdened transportation network and power supply.
- Highways are the most important link in the transportation network. 23,000 km of the 30,000 km of highways are paved and in good condition.
- Railways are relatively new to Xinjiang and connect only the few major cities to the rest of China.
- Civil aviation has developed rapidly and airlines link Xinjiang to the rest of China.
- The standard of living is relatively low compared to other parts of China.

Tourism:
- Lake of Heaven: a small, deep-blue lake located halfway up a mountain in the middle of a desert
- The ancient Silk Road passed through Xinjiang. Mosques, tombs, bazaars, and ruins make many cities interesting for tourists. The majority of inhabitants belong to minority groups and their unique cultures permeate life in Xinjiang.
- Xinjiang is not on the common tourist route, so its hotel facilities are basic. Currently there are 79 tourist hotels: 33 medium and 46 small.

© SPICE

GANSU PROVINCE



Capital: Lanzhou
Population: 24.4 million
Density: 54 people per sq. km

Climate:

Dry, with little rain or snow. Winters are long and cold; the rest of the seasons are short. Drought, strong winds, and sandstorms occur seasonally.

Topography:

Most of Gansu is a mountainous plateau which covers over 70 percent of the total area. The plateau areas are cut through by non-navigable rivers and deep gorges, with serious soil erosion problems.

Resources:

Gansu has an abundant supply of ores and minerals, some of which are: nickel, copper, lead, coal, and limestone. It also has a significant amount of water power potential.

ECONOMY

Industry:

- Industry is the dominant sector of the economy.
- The output value of heavy industry is 3 times greater than that of light industry.
- Major industries: petroleum, chemicals, machinery, electricity
- Light industries like pharmaceuticals and electronics have improved. Its textile industry relies heavily on its high-quality wool products and local handicrafts.

Agriculture:

- Most of the labor force is engaged in agriculture.
- Gansu has different climatic regions that produce different crops.
- Major grain crops: wheat, maize (sown on 79 percent of the farmland)
- Major cash crops: cotton, tobacco, fruits
- Timber forests and walnut trees are plentiful.
- Livestock raised: sheep
- Almost 30 percent of the land in Gansu is pastureland ideal for raising livestock.

Infrastructure:

- Low level of foreign capital: U.S.$83 million
- Its remote inland location and relatively weak infrastructure are strong deterrents for foreign investors. Infrastructural insufficiencies will become more apparent when further development places greater strains on the overburdened transportation network and power supply.
- Gansu links the remote regions of Xinjiang and Qinghai by railway to the rest of China.
- Railways connect most of the major cities.
- Highways are backbone of transportation. 21,000 km of its 35,000 km of roads are in extremely poor condition.
- There are only a few airports with limited service.
- The standard of living is relatively low compared to other parts of China.

Tourism:

- The Silk Road passed through Gansu. Different cultures and customs of minority groups make the province exotic.
- Buddhist cave temples and treasures can be found throughout Gansu.
- The mountains, valleys, and deep gorges provide beautiful scenery.
- As of 1995, there were 38 tourist hotels: 20 medium and 18 small.

resource card #1c

INNER MONGOLIA AUTONOMOUS REGION

Capital: Hohhot
Population: 22.8 million
Density: 18 people per sq. km

Climate:
Winters are long and cold with frequent blizzards. Summers are short, but warm. Parts of the mountain areas in the northeast are permanently frozen. Winds are strong all year, and most rainfall occurs during the summer.

Topography:
Mountains cover the northeastern section of Mongolia. The rest of the region consists of grassy plateaus, plains, and vast deserts. There are a number of lakes, both freshwater and saltwater.

Resources:
Inner Mongolia has abundant natural resources: forests, grasslands, mineral deposits. Coal is mined in great quantities here. There is great potential for wind power generation.

ECONOMY

Industry:
- Industry is the dominant sector of the economy, but only by a small margin over agriculture.
- The output value of heavy industry is slightly greater than that of light industry.
- Major industries: coal mining, food processing, power generation, iron and steel processing, machine building, wool textiles

Agriculture:
- Most of the labor force is engaged in agriculture.
- Livestock raising is the most important agricultural activity. Advances are being made to improve stock breeds, veterinary care, mechanization, and processing of animal products.
- Livestock raised: sheep, horses, cattle, camels
- Crops are grown on only 5 percent of the land and are grown only during the short summer.
- Major grain crops: wheat, oats
- Major cash crops: linseed, rapeseed, beets
- The forest regions provide a large portion of China's timber supply.

Infrastructure:
- Low level of foreign capital: U.S.$88 million
- Its remote inland location and relatively weak infrastructure are strong deterrents for foreign investors. Infrastructural insufficiencies will become more apparent when development places strains on the overburdened transportation network and power supply.
- Inner Mongolia is connected to the rest of China by air, railways, waterways, and roads. It also has several entry points to Mongolia and Russia.
- Highways are backbone of transportation. 30,000 km of its 45,000 km of roads are in very poor condition.
- Airports provide service to other cities in China.
- People are relatively poor compared to other parts of China.

Tourism:
- Genghis Khan's mausoleum: a pilgrimage site for all Mongolians
- Desert sand dunes, vast grasslands, various temples, museums, and festivals are popular with tourists.
- Xanadu: Kublai Khan's decadent palace which is currently in ruins
- As of 1995, there were only 58 tourist hotels: 18 medium and 40 small.

NINGXIA HUI AUTONOMOUS REGION

Capital: Yinchuan
Population: 5.1 million
Density: 77 people per sq. km

Climate:

Winters are over six months long, summers are three months long, and spring and autumn are both brief. There is little rainfall and temperatures are extreme.

Topography:

Mountains and plateaus cover most of Ningxia's territory, with deep gorges cut out by its fast-flowing rivers.

Resources:

There are rich coal, petroleum, and limestone reserves. Fast-flowing mountain rivers offer hydropower potential.

ECONOMY

Industry:

- Industrial output value is twice that of agriculture.
- The output value of heavy industry is more than twice that of light industry.
- Industries center around coal (mining, prospecting, mine construction, refining, and research).
- Other heavy industries include electric power generation and machine building.
- Major light industries: textiles, wool, food products

Agriculture:

- Most of the labor force is engaged in agriculture.
- Major grain crops: wheat (sown on 82 percent of the cultivated land)
- Major cash crops: flaxseed, rapeseed, sugar beets
- The Yellow River supplies irrigation water. Ancient canals have been restored to increase irrigation and water supplies.
- Livestock raised: sheep, goats

Infrastructure:

- Very low level of foreign capital: U.S.$6 million
- Its remote inland location and relatively weak infrastructure are strong deterrents for foreign investors. Infrastructural insufficiencies will become more apparent when development places strains on the overburdened transportation network and power supply.
- The railway in Ningxia links remote regions of the east and west together. An additional railway is currently under construction and will join Ningxia to provinces to the south.
- Highways and railways are used for transport. 5,600 km of its 8,500 km of roads are in very poor shape.
- One airport provides limited service within China.
- People are relatively poor compared to other parts of China.

Tourism:

- The Hui minority group that occupies much of this region is descended from ancient Arab and Iranian traders who once traveled here. The Islamic influence of their culture is still evident in the architecture, food, customs, and handicrafts.
- Worthy sights include various temples, mosques, and pagodas scattered in the mountains, bleak desert sand dunes, and the mountain scenery.
- Ningxia is not on the common tourist route, so its hotel facilities are basic. Currently there are only 17 tourist hotels: 9 medium and 8 small.

BEST COPY AVAILABLE

resource card #1e

SHAANXI PROVINCE

Capital: Xi'an
Population: 35.1 million
Density: 175 people per sq. km
Most people live in the central and southern parts of the province.

Climate:
The plateau regions of the north are dry and cool. The southern mountains are warm and moist. Most rainfall occurs during the summer and autumn.

Topography:
The northern part of the province is a plateau with deep ravines. The southern part of the province is mountainous. The middle of the province is a fertile plain and river basin.

Resources:
Shaanxi is rich in mineral resources and has large reserves of coal, oil, iron, and copper. Potential for hydropower is great.

ECONOMY

Industry:
- Industrial output value is about 3 times higher than that of agriculture.
- Heavy and light industrial output values are about equal.
- Shaanxi is one of the major engineering bases in China. Enterprises that make power transmitters, transformers, precision machine tools, televisions, etc. are abundant.
- Important textiles: wool, cotton, silk
- Major heavy industries: coal mining, thermal power plants, oil production

Agriculture:
- Most of the labor force is engaged in agriculture.
- Major grain crops: wheat, maize (sown on 86 percent of cultivated land)
- Major cash crops: rapeseed, peanuts
- Forests cover 18 percent of the land, and provide timber, a variety of fruits, and tree products like lacquer.
- Livestock raised: donkeys, sheep

Infrastructure:
- Moderate level of foreign capital: U.S.$392 million
- Infrastructural insufficiencies will become more apparent when further development places strains on the overburdened transportation network and power supply.
- A long history of civilization explains its well-developed communication links with other cities via roads and waterways, and its well-established government system.
- 22,000 km of its 40,000 km of roads are in extremely poor condition.
- Highways, waterways, railways, and airlines are used for shipping and transport.

Tourism:
- Shaanxi is one of the oldest settled regions in China. Incredible archaeological and historical sites make it a prime tourist destination. Islamic influences still exist in Xi'an, which was part of the ancient Silk Road.
- Army of Terracotta Warriors: one of China's greatest archaeological discoveries
- Yan'an: a village significant in Communist history because it served as the Communist headquarters during their early years of existence
- Currently there is a good variety of tourist hotels, but too few to accommodate growth in tourism.
- As of 1995, there are 47 tourist hotels: 3 large, 31 medium, and 13 small.

© SPICE

LIAONING PROVINCE

Capital: Shenyang
Population: 40.9 million
Density: 281 people per sq. km

Climate:
Winters are cold. Summers are hot. Spring is short and windy. The western half of the province is rainy, while the eastern part tends to be drier.

Topography:
Mountains cover the eastern and western parts of the province. The central area is a vast plain that covers about one-third of the province. There are 360 rivers in Liaoning, all of which feed from the four major rivers that run through the province. Over 60 islands are located off the coast of Liaoning.

Resources:
Significant iron, boron, coal, and oil reserves. Many of the rare metals found in Liaoning are useful for the nuclear power and aerospace industries. Coastal location is ideal for further development of its fishing industries.

ECONOMY

Industry:

- The output value of industry is almost triple that of agriculture.
- The output value of heavy industry is twice as high as light industry.
- Liaoning is considered to be China's most industrial province because of its huge heavy industries built around coal, iron, steel, petroleum, and machinery.
- Textiles, papermaking, and consumer electronics are all major light industries in Liaoning.

Agriculture:

- Most of the labor force is engaged in agriculture.
- Main grain crop: maize
- Main cash crops: fruits, sugar beets, peanuts
- About one-third of the farmland is irrigated, and almost all of it is plowed by machines.
- Liaoning has a healthy fishing industry based on its off-coast catches, and it has 6,000 hectares of shallow water available for fish farm development.
- Livestock raised: pigs

Infrastructure:

- High level of foreign capital: U.S.$1.5 billion
- Infrastructural insufficiencies are becoming apparent as development places strains on the overburdened transportation system and power supply.
- Air pollution in the winter is especially severe.
- Liaoning is reported to have the most advanced transportation system in China. It lies in a strategic domestic and international position, and is traversed by railways that lead to Russia and Korea.
- 26,000 km of the 43,000 km of roads are paved and in good condition.
- Most freight transport is done via highways, with a significant amount done via railways, and some by sea. Airports connect the major cities to the rest of China, and even to neighboring Korea.
- The standard of living here is above average in China.

Tourism:

- Liaoning is a place for history buffs. It has a long history of foreign occupation and domination.
- It has few scenic spots and is not usually frequented by foreigners except for business purposes.
- Exotic Manchu tombs and palaces are interesting sights for tourists.
- There are 109 tourist hotels: 54 medium and 55 small.

JILIN PROVINCE

Capital: Changchun
Population: 25.9 million
Density: 144 people per sq. km

Climate:

Winters are long, dry, and extremely cold, lasting about 6 months. Summers are warm and rainy. Most of the annual rainfall occurs during the summer. Springs are windy and dusty. Both spring and autumn are monsoon seasons.

Topography:

The southeastern part is covered by mountains; the northwestern part is covered by vast plains; and the central part consists of hilly land.

Resources:

The Songhua River's 19 tributaries have great commercial value for Jilin because of their significant hydropower potential. Jilin has vast forests and expansive grasslands. Medicinal plants grow in great variety and quantity. Jilin also has major gold, limestone, and coal reserves.

ECONOMY

Industry:

- The output value of industry is 3 times higher than that of agriculture. Heavy industry is dominant.
- Jilin has developed into an important industrial base for machinery and chemicals.
- Major products: transportation vehicles, optical instruments, chemicals like ammonia and acids
- Industry is greatly varied.

Agriculture:

- Most of the labor force is engaged in agriculture.
- Only one-fifth of the farmland in Jilin is irrigated, and only about half of that is irrigated by machines.
- Major grain crops: maize, millet, soybeans
- Major cash crops: sugar beets, tobacco
- The mountains are covered by dense forests, with huge timber reserves. Jilin produces the second highest timber output in China. It has the potential to produce even more, if measures are made to plant new forests in the unused regions of the province.
- Grasslands in the west are ideal for raising livestock.
- Livestock raised: mostly oxen and horses
- The rivers and lakes are used for fish farming.

Infrastructure:

- Moderate level of foreign capital: U.S.$480 million
- Infrastructural insufficiencies are becoming apparent as development places strains on the overburdened transportation network and power supply.
- Air pollution in the winter is especially severe.
- The transportation network is well developed with extensive railways and highways.
- About 18,000 km of its 31,000 km of roads are unpaved or in poor condition.
- The standard of living here is above average in China.

Tourism:

- People often flock to the city of Jilin during the winter when the trees are covered with icicles.
- The annual Ice Lantern Festival and ice-carving competition draws many visitors.
- Tianchi is a crater lake in the mountains that offers beautiful scenery, waterfalls, and hiking trails. Unfortunately, it is overrun by tourists who have polluted the pristine environment with their trash.
- Jilin has two new downhill ski resorts complete with ski lifts and rental equipment.
- As of 1995, there were 57 tourist hotels: 24 medium and 33 small.

© SPICE

HEILONGJIANG PROVINCE

Capital: Harbin
Population: 37 million
Density: 79 people per sq. km

Climate:
Winters are long, dry, and extremely cold. Summers are short and humid. Most of the rain falls in the summer, while winters and springs are dry and prone to drought.

Topography:
Heilongjiang is shaped like a basin, with mountain ranges along the western, northern, and eastern borders and low-lying plains in the central and south.

Resources:
Heilongjiang has major deposits of oil, coal, gold, and a number of other metals and minerals. It has vast forests and leads the country in timber reserves. In addition, over 5 million hectares of unused land are available for tree planting. The province is one of the country's main producers of rare medicinal products found in these forests. Powerful mountain rivers provide potential sources for hydropower.

ECONOMY

Industry:
- The output value of industry is almost 4 times higher than that of agriculture. Heavy industry is dominant. Heilongjiang is one of China's most advanced heavy industry bases.
- Coal mining, oil and natural gas production and processing, machinery, and electricity are some examples of well-developed industries.
- Light industries like sugar refining and papermaking are growing rapidly and helping to balance the industrial economy.

Agriculture:
- Most of the labor force is engaged in agriculture.
- Major grain crops: wheat, maize, soybeans
- Major cash crops: sugar beets, flax, tobacco
- Most land is plowed by machinery. Still, only 12 percent of the land is currently irrigated and only half of this is irrigated by mechanical means.
- It is the leading timber producer of China.
- Livestock raised: superior breeds of cattle, sheep, and pigs developed by recent biotechnology.

Infrastructure:
- Moderate level of foreign capital: U.S.$620 million
- Infrastructural insufficiencies are becoming apparent as development places strains on the overburdened transportation network and power supply.
- Air pollution in the winter is especially severe.
- Heilongjiang has an excellent transportation network of railways, highways, and inland waterways, though transport is limited during the winter when the waterways freeze over.
- About 28,000 km of its 49,000 km of roads are paved and in good condition.
- The standard of living here is above average in China.

Tourism:
- Zhalong Nature Reserve: a rare bird sanctuary
- Ice Lantern Festival: a main attraction of Harbin, but the severe winter weather deters tourists.
- Several ski resorts are open, complete with chairlifts, rental equipment, and lodging.
- Mirror Lake: known for its pavilions, gardens, waterfalls, and pools.
- Heilongjiang borders Russia and is popular with travelers for this reason, but visas are problematic.
- As of 1995, there were 82 tourist hotels: 26 medium and 56 small.

resource card #3a

BEIJING MUNICIPALITY

Population: 12.5 million
Density: 744 people per sq. km

Climate:
Winters are long, cold, and dry. Summers are hot and rainy. Springs are short, dry, and windy. Autumns are cool and relatively dry.

Topography:
Mountains border Beijing on three sides and make up 62 percent of its area. The rest of the land in the southeast is flat and low-lying.

Resources:
The mountains are rich in coal, iron, gold, and copper reserves. Oil has also been discovered. Geothermal resources have also been identified, but have not yet been exploited commercially.

ECONOMY

Industry:
- The output value of industry is over 4 times higher than that of agriculture. Heavy industry is dominant.
- Strong industries: chemicals, machine building, transportation vehicles, food, electronics
- Light and textile industries are growing especially quickly, as is the handicraft industry.
- Construction industry is booming as new factories, businesses, hotels, etc. are being built.

Agriculture:
- The plains of Beijing supply the city with most of its fruits and vegetables.
- The actual area of farmland is decreasing because of new construction, but efficient methods have nonetheless managed to increase output.
- Major grain crop: wheat
- The mountain regions have timber forests and fruit orchards.
- Livestock raised: ducks, pigs, cattle, goats, chickens
- Agriculture is very modern. Mechanization is widespread; technology has improved soil and cropping systems; and irrigation is well developed.

Infrastructure:
- High level of foreign capital: U.S.$1.1 billion
- Beijing is the capital of China and is therefore the center of communication and transportation for the entire country.
- It has by far the largest international airport and railway station in China.
- Beijing also has a modern subway system.
- Almost all of the 12,000 km of highways and roads are paved and in good condition. The city is clean and modern.
- Since new factories, office buildings, and hotels are being built, adequate housing, santitation facilities, and roads must be improved to accommodate growth.
- People here are relatively wealthy compared to other parts of China.

Tourism:
- Beijing is full of historical and cultural treasures for tourists. The Forbidden City, the Temple of Heaven, Tiananmen Square, the Summer Palace, and the Great Wall are just a few.
- There are countless gardens, pavilions, temples, pagodas, parks, and museums to visit.
- As of 1995 there were 262 hotels: 24 large, 125 medium, and 113 small.

© SPICE

TIANJIN MUNICIPALITY

Population: 9.4 million
Density: 831 people per sq. km

Climate:
Winters are cold and dry. The Hai River and parts of the sea often freeze over for several months. Summers are hot and rainy, with most of the annual rainfall occurring during this time.

Topography:
Aside from the hills along the northern edge of Tianjin, the land is low-lying and flat.

Resources:
Tianjin has excellent fishing grounds and inexhaustible salt deposits. Rich oil and natural gas deposits lie offshore.

ECONOMY

Industry:

- The output value of industry is over 9 times higher than that of agriculture. Light industry is dominant.
- The textiles industry has always been strong.
- Heavy industry is mostly in processing industries: petroleum refining, chemicals, electricity generation.
- The Tianjin Economic and Technical Development Zone was created to attract domestic and foreign investors.
- Construction industry is booming.
- Major products are consumer-oriented: textiles, electronic goods, bicycles, and food products.
- Sea salt is an important product.

Agriculture:

- Agriculture is concentrated in the suburbs. The actual area of farmland is decreasing because of new construction, but efficient methods have managed to maintain or even increase output.
- Agriculture is very modern. Mechanization is widespread; technology has improved soil and cropping systems; and irrigation is well developed.
- Major grain crops: corn, wheat
- Hilly areas have timber forests and fruit orchards.
- Much of the land is ideal for fish farming. To supplement the deep-sea fishing industry, projects have begun to develop fish and shrimp farms.

Infrastructure:

- High level of foreign capital: U.S.$1.6 billion
- Tianjin has enormous, easily accessible port facilities that handle international freight transport.
- Tianjin sits at a major junction of the north-south railways and highways. Modern railways, marine shipping lines, airlines, and highways make Tianjin easily accessible and modern.
- Almost all of its 4,200 km of roads are paved and in good condition.
- Public housing, santitation facilities, and roads are constantly being improved or built.
- Air and water pollution are serious concerns.
- The standard of living is relatively high compared to other parts of China.

Tourism:

- Tianjin has no notable scenery or cultural wonders, but it is well known for its fabulous textiles.
- Temples, pavilions, museums, parks, markets, and even a section of the Great Wall are tourist sights.
- As of 1995 there were 48 hotels: 1 large, 21 medium, and 26 small.

BEST COPY AVAILABLE

HEBEI PROVINCE

Capital: Shijiazhuang
Population: 64.3 million
Density: 357 people per sq. km

Climate:
Winters are dry and cold. Summers are hot and rainy. Spring is usually dry, and autumns are usually waterlogged from the summer rains.

Topography:
Mountains and highlands make up most of the northern and western areas while the rest of the province towards the southeast consists of lakes and low-lying land. Hebei is located on the coast of the Bohai Sea.

Resources:
Oil, coal, and iron are in abundant supply, as well as other metals like copper and gold. Hebei also has a large variety of tree species.

ECONOMY

Industry:
- The output value of industry is over 2 times higher than that of agriculture. Heavy and light industry are almost equal in output value.
- Industry developed slowly because emphasis was initially placed on mining coal. Other industries like pharmaceuticals, chemicals, cement, and textiles initially lagged behind and only recently caught up.
- Oil drilling and refining is another major industry in Hebei, as well as iron and steel smelting.
- Hebei is famous for its pottery and porcelain.

Agriculture:
- Most of the labor force is engaged in agriculture.
- Major grain crop: wheat
- Hebei is a major producer of wheat in China.
- Major cash crops: cotton, peanuts, fruits, vegetables
- Livestock raised: horses, sheep, donkeys, pigs, chickens
- Almost all of the farmland is irrigated, and flood risks have been reduced greatly. Agriculture is still affected by dust storms and droughts.

Infrastructure:
- Moderate level of foreign capital: U.S.$613 million
- Infrastructural insufficiencies are quickly becoming apparent as development places strains on the overburdened transportation network and power supply.
- Hebei connects Beijing with the rest of China. For this reason, it is well endowed with an extensive transportation and communication network.
- About 37,000 km of the 52,000 km of roads in Hebei are paved and in good condition.
- Most freight is transported via the highways, though some goes by railway.
- Hebei has the second largest harbor in China and the biggest coal and oil export harbor.
- The standard of living is relatively high compared to other parts of China.

Tourism:
- Beidaihe: a beach resort where most of China's prominent leaders and Beijing residents flock for summer vacations, also popular with non-Chinese.
- Chengde: a resort town during the imperialist era. The city has an eclectic collection of minority architecture. Most of these buildings are in serious disrepair and could benefit from restoration.
- As of 1995, there were 76 tourist hotels: 52 medium and 24 small.

SHANDONG PROVINCE

Capital: Ji'nan
Population: 87 million
Density: 580 people per sq. km

Climate:
Winters are cold and dry.
Summers are hot and rainy.
Floods and erosion are common.
Spring and autumn are drier and more comfortable in temperature.

Topography:
65 percent of Shandong is covered by plains. The rest is covered by mountains, hills, and basins. Eastern Shandong is a peninsula that juts into the Yellow Sea.

Resources:
A great variety of minerals are found in Shandong, some of which are: coal, petroleum, natural gas, gold, and diamonds. The mountains and hills are home to over 200 kinds of medicinal herbs.

ECONOMY

Industry:

- Industrial output value is about 1.5 times higher than that of agriculture. Light industry is dominant.
- Shandong's industrial strength grew from its history of imperialist domination in the mid to late 19th century.
- Imperialists helped establish an industrial base by setting up various light industries around textiles and beer.
- Major heavy industry products: iron, steel, petroleum, coal

Agriculture:

- Most of the labor force is engaged in agriculture.
- Shandong has extremely advanced agriculture because of its superior natural conditions, and high degree of mechanization with the most farm machines, chemical fertilization, and electricity.
- Major grain crops: wheat, maize, sweet potatoes
- It is a major grain producer of China.
- Major cash crops: cotton, peanuts, fruits
- Livestock raised: cattle, horses, donkeys, mules, used mostly for farming and transport
- Fishing is an important industry because of its coastal location and many large freshwater lakes.

Infrastructure:

- High level of foreign capital: U.S.$2.8 billion
- Infrastructural insufficiencies are quickly becoming apparent as development is placing strains on the overburdened transportation network and power supply.
- During the years of German occupation in the late 1800s, ports, railways, and roads were built to make Shandong easily accessible for industry.
- Today, Shandong has first-class harbors and a 54,000 km network of roads; 43,000 km of these are paved and in good condition.
- The standard of living is fairly high compared to other parts of China.

Tourism:

- Taishan: one of China's five sacred mountains
- Qufu: the birthplace of Confucius, China's most famous philosopher
- Qingdao: a city known for its beer and its German colonial architecture
- The beaches have heavily developed tourist industries.
- Lao Mountain: a beautiful, scenic place for hiking
- As of 1995, there were 173 tourist hotels: 1 large, 69 medium, and 103 small.

resource card #3e

HENAN PROVINCE

Capital: Zhengzhou
Population: 91 million
Density: 545 people per sq. km

Climate:
Henan has distinct seasons with mild temperatures. Winters are dry, springs are windy, summers are hot and rainy. Rainfall is unpredictable, making Henan susceptible to natural disasters like flooding and drought.

Topography:
Over half of Henan is covered with plains and basins. Mountains and hills occupy a significant portion of the northwestern and southwestern area. Over 460 rivers, including the Yellow River, criss cross their way through the province.

Resources:
Henan has large reserves of many different minerals and ores, some of which are: coal, oil, iron, and natural gas. Potential for fish production and afforestation in mountain areas is very high.

ECONOMY

Industry:
- The output value of industry is more than 2 times higher than that of agriculture. Heavy industry is dominant by a slight margin.
- A large part of industry in Henan revolves around coal mining and the power industry.
- Much of the textile industry is geared towards producing cotton goods such as yarn and cloth.
- Other industries include aluminum refining, machinery, food production, and cigarette making.

Agriculture:
- Most of the labor force is engaged in agriculture.
- Henan's agricultural history dates back 7,000 years to the Neolithic Age. The Yellow River Valley's fertile soil and rich conditions have always made Henan naturally favorable for agriculture.
- Major grain crops: wheat, maize, soybeans (sown on 78 percent of cultivated land)
- Major cash crops: cotton, fruits, tobacco
- Afforestation has successfully transformed deserts and sand dunes into thick forests.
- Important producer of large livestock, pigs, sheep, and poultry; superior breeds of oxen and donkeys

Infrastructure:
- Moderate level of foreign capital: U.S.$650 million
- Infrastructural insufficiencies will quickly become apparent as development begins to place strains on the overburdened transportation network and power supply.
- Zhengzhou is one of the major junction points for the railway system in China.
- About 37,000 km of the 50,000 km of highways are paved and in good condition. Most transport is done by highways.
- The standard of living is about average compared to other parts of China.

Tourism:
- Archaeological sites exist from the first dynasty of Chinese civilization.
- Shaolin Monastery: the birthplace of China's martial arts style, still a martial arts school today
- Binyang Caves, Longmen Caves, Lotus Flower Cave: Buddhist caves carved over 1,000 years ago
- Kaifeng: a charming old city that once had a Jewish community in the early 17th century
- As of 1995, there were 39 tourist hotels: 9 medium and 30 small.

© SPICE

resource card #3f

SHANXI PROVINCE

Capital: Taiyuan
Population: 30.8 million
Density: 192 people per sq. km

Climate:

The high altitude and inland location create a cooler climate in Shanxi. Winters are dry, cold, and severe, while summers are cool and rainy. Springs are dry and droughts often occur during this time.

Topography:

The entire province is covered either by mountains (72 percent of land), highlands, hills, or basins. The Yellow River creates the southern and western borders of the province and is the source of many large tributary rivers. The other major river system is the Haihe.

Resources:

One-third of China's entire coal supply is located in Shanxi. Some other minerals in great supply are: iron, copper, and limestone. The turbulent mountain rivers have great potential for hydropower.

ECONOMY

Industry:

- The output value of industry is over 3 times higher than that of agriculture. Heavy industry is dominant.
- Well-developed industrial base, with coal production as the mainstay. Shanxi produces one-fourth of China's coal.
- Other industries: power generation, machine building, metalworks, chemical production
- Light industry has expanded rapidly and includes such products as food, textiles, and paper.

Agriculture:

- Most of the labor force is engaged in agriculture.
- Agriculture in Shanxi is aided by a good supply of farm machinery. However, only about one-third of the farmland is irrigated and lack of water is sometimes a problem.
- Major grain crops: maize, wheat (sown on 81 percent of the cultivated land)
- Major cash crops: cotton, flaxseed
- The grassy mountains and hills of Shanxi make it ideal for raising livestock. The cattle of Shanxi are famous for their superior quality.
- Forests cover almost 14 percent of the land and provide ample timber reserves. There is much more potential for forest reserves because a large portion of the highlands is barren and in need of vegetation.

Infrastructure:

- Low level of foreign capital: U.S.$94 million
- Its remote location and relatively weak infrastructure are strong deterrents for investors.
- Shanxi is isolated because the mountains and turbulent rivers make accessibility difficult and unpredictable. This has been a longtime obstacle to the transport of coal to other areas of China.
- Most freight transport is done via highways, with a significant portion done via railways.
- About 20,000 km of its 34,000 km of roads are paved andin good condition.
- Small airports connect major cities to the rest of China.
- The standard of living here is average compared to other parts of China.

Tourism:

- Yungang Caves, Hanging Monastery, and Wutai Mountain are all sacred places to visit.
- As of 1995, there were 44 hotels: 27 medium and 17 small.

resource card #3g

JIANGSU PROVINCE

Capital: Nanjing
Population: 70.6 million
Density: 706 people per sq. km

Climate:
The climate varies within Jiangsu. The northern part has cold winters and hot, rainy summers. The southern part has warm winters and abundant rainfall year-round. Typhoons have great impact on agriculture during late summer and early autumn.

Topography:
The overwhelming majority of land in Jiangsu is in the form of low-lying plains. Lakes and rivers are also a major part of Jiangsu's topography. Jiangsu is on the coast of the Yellow Sea.

Resources:
Abundance of lakes and rivers, which benefit irrigation, aquaculture, agriculture, flood control, electricity production, and freight transport. Coal is widely distributed in Jiangsu. Iron, copper, limestone also exist in large quantities. Significant water resources are suitable for development of fisheries.

ECONOMY

Industry:
- The output value of industry is more than 2 times higher than that of agriculture. Light industry is dominant by a slight margin.
- Jiangsu has the highest light industrial output value in the country.
- Major products: building materials, food products, textiles, chemicals, machinery, electronics
- Silk, clay sculptures, and embroidery are some of its famous traditional handicrafts.

Agriculture:
- Most of the labor force is engaged in agriculture.
- Jiangsu has the ideal climate, land, and water supply for agriculture. Farms can harvest up to three crops each year. Machinery is fairly advanced and 86 percent of the land is irrigated, nearly all by power.
- Major grain crops: rice, wheat, sweet potatoes
- Major cash crops: cotton, rapeseed, peanuts, fruit
- Livestock raised: cattle, donkeys, pigs

Infrastructure:
- Very high level of foreign capital: U.S.$5.3 billion
- Infrastructural insufficiencies are quickly becoming apparent as development is placing strains on the overburdened transportation network and power supply.
- Jiangsu has an advanced communications and transportation system. It is a major junction for all types of transportation routes, including rivers, railways, and highways.
- 24,000 km of its 26,000 km of roads are in good condition.
- Most freight transport is done via highways, and a significant portion is done via waterways.
- The standard of living is fairly high compared to other parts of China.

Tourism:
- Suzhou: a beautiful city, often called the Venice of China because of its canals. Suzhou's beauty is deteriorating because of pollution and industrialization.
- Nanjing is full of historical and archaeological sites. The Memorial of the Nanjing Massacre and the Sun Yatsen Mausoleum are some popular places. Sun Yatsen is considered to be the father of modern China. The mausoleum is therefore a pilgrimage spot for many Chinese.
- As of 1995, there were 204 tourist hotels in the area: 1 large, 111 medium, and 92 small.

© SPICE

HUBEI PROVINCE

Capital: Wuhan
Population: 57.7 million
Density: 320 people per sq. km

Climate:

Rainfall is abundant in the spring and early summer. Summers are hot and dry and winters are very cold and dry. Severe droughts can occur during autumn.

Topography:

Hubei is surrounded on three sides by mountains, with the southern border being the open part. 80 percent of Hubei's land is either mountains or hills. Plains make up the remainder.

Resources:

Hubei has rich resources in magnetite, manganese, coal, and iron. Gold and copper mines are also plentiful. The province has great potential for hydroelectric power, timber production, and aquatic breeding. There is a significant amount of pastureland that is currently unutilized.

ECONOMY

Industry:

- The output value of industry is over 2 times higher than that of agriculture. Heavy industry is dominant by a slight margin.
- Important industries: iron and steel enterprises, machinery, automobile manufacturing
- Hydropower industry is making news with the Three Gorges Dam Project, the largest project of its kind in the world.

Agriculture:

- Most of the labor force is engaged in agriculture.
- Major grain crops: rice, wheat, corn (sown on 75 percent of cultivated land)
- Major cash crops: cotton, rapeseed, sesame
- Specialty products grown in mountain and hilly areas: tea, tangerines, mushrooms
- 65 percent of the cultivated land is irrigated.
- Dense forests in mountains and hills
- Forest products: timber, medicinal herbs
- Livestock raised: poultry, rabbits, bees
- Potential livestock: pigs, cattle, sheep
- Hubei's many lakes and rivers are ideal for fish breeding.

Infrastructure:

- Moderate level of foreign capital: U.S.$887 million
- The electricity produced from the dam will equal one-fifth of China's current generating capacity and is aimed to supply power for the developing industries located upriver.
- It will also improve hazardous navigation conditions and protect against flooding.
- Hubei is at the hub of nine provinces and is a key junction of land and water transport systems.
- With the Yangzi River, major railway lines, and extensive highways, Hubei's transport system is able to handle an enormous amount of freight.
- Wuhan has a new airport and railway station.
- Air and water pollution pose serious health hazards.
- About 30,000 km of the 49,000 km of roads are paved and in good or excellent condition.

Tourism:

- Yichang: city located near the Three Gorges; the scenery will be altered by the dam, so the future of the river cruise tourist industry is in question.
- Wudangshan: sacred Taoist mountains
- As of 1995, there were 159 tourist hotels: 1 large, 84 medium, and 74 small.

resource card #4b

HUNAN PROVINCE

Capital: Changsha
Population: 63.9 million
Density: 320 people per sq. km

Climate:
Hunan has four distinct seasons and abundant rainfall. There are occasional droughts, cold waves, spring and summer storms, and freezing winters.

Topography:
Hunan is shaped like a horseshoe, with mountains on the south, east, and west, and plains and small hills in the middle and north.

Resources:
Hunan leads the country in certain mineral ore excavation. Among them are tungsten, bismuth, lead, and zinc. They also have an important diamond and silicon mining industries. Hunan is rich in coal, timber, bamboo, and water power potential.

ECONOMY

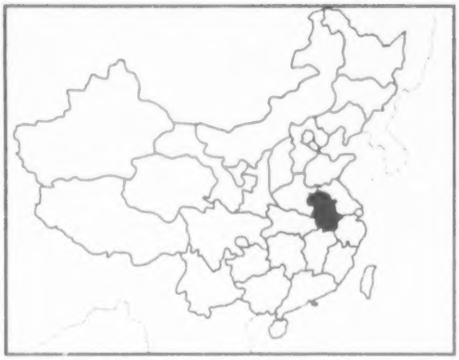
Industry:
- The output value of industry is over 2 times higher than that of agriculture. Heavy industry is dominant by a slight margin.
- Hunan is famous for its fine textiles. Hunan produces much of China's linen, paper, and porcelain.
- Major heavy industry products: cement, plateglass, chemical fertilizers, locomotives

Agriculture:
- Most of the labor force is engaged in agriculture.
- Major grain crop: rice
- Major cash crops: tobacco, rapeseed, tea, fruits
- Agricultural conditions are quite developed because Hunan has always been an important grain-producing region in China.
- 30 percent of the province is covered with forests, and exports of spruce timber and pine resin are significant.
- Hunan breeds freshwater fish in its waters, and has recently begun to cultivate pearl oysters.

Infrastructure:
- Moderate level of foreign capital: U.S.$560 million
- Infrastructural insufficiencies will quickly become apparent as development begins to place strains on the overburdened transportation network and power supply.
- Highways and waterways are well developed.
- 48,000 km of its 59,000 km of roads are paved and in excellent or good condition.
- Railways connect major cities, but highways bear most of the freight transport.
- The standard of living is average compared to other parts of China.

Tourism:
- Shaoshan: a small village that was the birthplace of Mao Zedong, the political, cultural, and historical icon of Communist China
- Zhangjiajie Nature Preserve: famous for its beautiful and bizarre mountain scenery
- Yueyang: a port city on the Yangzi River that is a stop for most river cruises
- Changsha: a city that has several Maoist pilgrimage spots
- As of 1995, there were 95 tourist hotels: 35 medium and 60 small.

ANHUI PROVINCE



Capital: Hefei
Population: 60.1 million
Density: 462 people per sq. km

Climate:
Anhui has four distinct seasons with a temperate climate. Summer and winter are short, and the rest of the year is warm.

Topography:
Mountains make up much of the southern and part of the eastern portions of Anhui, and the rest of the land is a mix of plains, lakes, and hills.

Resources:
Anhui has abundant reserves of coal, iron, and copper. Dense forests offer rich timber reserves and medicinal herbs. The ample water areas indicate significant resources in aquatic products.

ECONOMY

Industry:
- The output value of industry is about 1.5 times higher than that of agriculture. Light industry is dominant by a slight margin.
- Heavy industry in Anhui is dominated by coal, iron, and steel mining and processing.
- Textiles and food production account for a significant portion of the light industrial sector.

Agriculture:
- Most of the labor force is engaged in agriculture.
- Major grain crops: rice, wheat
- Major cash crops: rapeseed, cotton, tobacco, tea, local fruits
- The forests are dense and full of potential for timber production.
- Anhui has been designated as an important base of commercial fish production.

Infrastructure:
- Moderate level of foreign capital: U.S.$516 million
- Infrastructural insufficiencies will quickly become apparent as development begins to place strains on the overburdened transportation network and power supply.
- Anhui has a well-developed network of transportation with railways, extensive highways, inland waterways, and civil airlines.
- About 29,000 km of its 35,000 km of roads are paved and in good condition.
- The standard of living is fairly high compared to other parts of China.

Tourism:
- Yellow Mountains: a famous scenic spot in China. They are mountains of strangely shaped trees, rocks, and clouds that have inspired the Chinese for thousands of years.
- Mount Jiuhua: a sacred Buddhist mountain with ancient monasteries, temples, and historical relics. It is a summer resort for Chinese tourists, and is much less crowded than the Yellow Mountains.
- As of 1995, there were 118 tourist hotels: 54 medium and 64 small.

JIANGXI PROVINCE

Capital: Nanchang
Population: 40.6 million
Density: 243 people per sq. km

Climate:
Jiangxi has four distinct seasons. Spring and autumn are short; winter and summer are long. Spring is the rainy season; autumn is the dry season.

Topography:
Jiangxi is bordered by mountains on the west, south, and east. The central region is mostly hills and plains. Seventy-eight percent of Jiangxi's land is comprised of mountains and hills. Only 22 percent are plains. The plains are located around the Poyang Lake, which acts as a drainage site for most of the rivers that flow through Jiangxi.

Resources:
Jiangxi has enormous mineral reserves of tungsten, copper, coal, iron, and over 120 other valuable minerals. The province is heavily forested and has abundant timber and bamboo reserves. Five major rivers flow through Jiangxi and form an extensive waterway network as well as harboring great hydroelectric potential.

ECONOMY

Industry:
- The output value of industry is about 1.5 times higher than that of agriculture. Heavy industry is dominant by a slight margin.
- Major products: tungsten, coal, iron, cement, steel
- The mining industry has always been important.
- Significant enterprises: electronic goods, farm machinery, cars, handicrafts

Agriculture:
- Most of the labor force is engaged in agriculture.
- 79 percent of the farmland is irrigated.
- Major grain crops: rice, sweet potatoes, wheat (sown on 67 percent of cultivated land)
- The weather and soil conditions are favorable to rice growing. Two rice crops are grown each year.
- Major cash crops: rapeseed, peanuts, tea
- Jiangxi exports large quantities of timber and bamboo, as well as sideline products like tea-seed oil and resin.
- Vast grasslands are well suited for animal raising. Livestock production centers have been set up.
- The many lakes, reservoirs, ponds, and rivers make Jiangxi an important freshwater fish producer. They also have enterprises in pearls and lotus seed.

Infrastructure:
- Moderate level of foreign capital: U.S.$345 million
- Infrastructural insufficiencies will quickly become apparent as development begins to place strains on the overburdened transportation network and power supply.
- Jiangxi relies mostly on roads for freight transport.
- An extensive highway network covers the province, and railways connect it to the rest of China.
- Most travel is done via train or bus.
- About 22,000 km of the 35,000 km of roads are paved and in good condition.
- The standard of living is relatively high compared to other parts of China.

Tourism:
- Lushan: a famous mountain resort built by foreign settlers in the late 1800s; the architecture is strikingly European, and the scenery is beautiful.
- Jingdezhen: a town famous for its prized porcelain.
- Many places here are historically significant because of its role in the early Communist movement.
- As of 1995, there were 75 tourist hotels: 45 medium and 30 small.

© SPICE

ZHEJIANG PROVINCE

Capital: Hangzhou
Population: 43.2 million
Density: 405 people per sq. km

Climate:
The climate is warm and humid, with distinct seasons and plenty of rainfall.

Topography:
Mountains and hills make up 70 percent of Zhejiang's landscape. Plains make up 24 percent and the remaining 6 percent are lakes and rivers. Zhejiang is located on the coast along the East China Sea.

Resources:
Zhejiang is rich in natural resources: timber, bamboo, medicinal products, and rich aquatic conditions for fish breeding. There are abundant mineral reserves in limestone and quartz. Hydropower potential is currently under exploited.

ECONOMY

Industry:

- The output value of industry is almost 4 times greater than that of agriculture.
- Light industry is the stronghold of the economy.
- Major products: silk, paper, wool, linen, pottery; Shaoxing wine has been famous for 2,400 years.
- Major handicraft products: silk umbrellas, scissors, bamboo carvings, wood engravings
- Heavy industry has developed to encompass mainly hydropower generation, metalworks, machine building, and chemicals.

Agriculture:

- Most of the labor force is engaged in agriculture.
- Major grain crops: rice, wheat, maize (sown on 74 percent of cultivated land)
- Major cash crops: cotton, rapeseed, mulberry, tea
- Tangerines and the "Dragon Well" brand of green tea are famous for their high quality.
- 88 percent of the farmland is irrigated.
- Zhejiang has vast forests and is China's leading producer of bamboo. Timber, mushrooms, and medicinal herbs are also major forest products.
- Livestock raised: pigs, sheep, bees
- Zhejiang is a major producer of fish and sea products.

Infrastructure:

- High level of foreign capital: U.S.$1.3 billion
- Infrastructural insufficiencies are becoming apparent as development is placing strains on the over-burdened transportation network and power supply.
- Highways, railways, inland waterways, and the sea are used for freight and passenger transport.
- All of the roads in Zhejiang are in good condition.
- The standard of living here is relatively high compared to other parts of China.

Tourism:

- Hangzhou: a picturesque city located on West Lake, the most famous lake in China. It is one of the most popular tourist destinations in China.
- Putuoshan: a beautiful island with temples, pagodas, arched bridges, narrow alleys, fishing boats, artisans, and monks; limited lodging and transportation
- According to the government, there are over 100 potential spots to develop for tourism.
- As of 1995, there were 165 tourist hotels: 3 large, 95 medium, and 67 small.

resource card #4f

SHANGHAI MUNICIPALITY

Population: 14.1 million
Density: 2,192 people per sq. km

Climate:
The climate is mild and humid. Winter and summer are long while spring and autumn are short. Summers are hot and humid, with frequent rainstorms and typhoons. Winters are dry.

Topography:
Almost all of Shanghai is a low-lying plain. It sits on the alluvial plains of the Yangzi River.

Resources:
Insignificant

ECONOMY

Industry:

- Industry is dominant. Light industry has higher output value than heavy industry.
- Shanghai is China's financial center and an emerging economic powerhouse (Taylor, p. 345).
- Science and technology have helped expand industry to encompass microelectronics and biotechnology projects.
- Main industries: metallurgy, chemicals, machinery, shipbuilding, textiles, electronics
- The processing of raw materials such as coal, oil, cotton, wool, etc. is the mainstay of industry.

Agriculture:

- Agriculture in Shanghai is concentrated in the suburbs, and is primarily used to supply the city with food. The actual area of farmland is decreasing because of new construction, but efficient methods have managed to maintain or even increase output.
- Agriculture is very modern in Shanghai. Mechanization is widespread; technology has improved soil and crop systems; and irrigation is well developed.
- Major grain crops: rice, wheat
- Major cash crops: fruits, vegetables
- Livestock raised: pigs, chicken, cattle, fish
- Livestock is commonly raised to supply the city.

Infrastructure:

- Very high level of foreign capital: U.S.$3 billion
- Air and water pollution cause serious health hazards and environmental damage.
- New roads and factories are under construction; environmental pollution control is becoming a priority; and a city subway system has been built.
- New towns are being built to accommodate new enterprises.
- Transportation is well developed, with modern facilities in sea, air, railway, and land transport.
- The standard of living is relatively high compared to other parts of China.

Tourism:

- The Bund: the riverside walkway lined with European buildings
- The city has many gardens, temples, and museums.
- A major tourist activity is shopping. Nanjing Road is the main street with endless shopping opportunities.
- As of 1995, there were 116 tourist hotels: 14 large, 86 medium, and 16 small.

© SPICE

GUANGDONG PROVINCE

Capital: Guangzhou
Population: 68.7 million people
Density: 385 people per sq. km

Climate:
Summers are very hot and humid. Winters are warm. Heavy rainfall and typhoons occur in the summer. Growing season is year-round.

Topography:
Guangdong has distinct topographical zones, with mountains in the north and west, the low river delta region, plateaus, terraced land, and coastal plains. There are over 500 large and small rivers in this province. Guangdong is on the coast of the South China Sea.

Resources:
Coal, shale oil, light oil, offshore natural gas, and iron are all found in great supply. 37 percent of the land is covered with dense forests. Aquatic resources are plentiful with the rivers and coastline. Natural catching and artificial breeding of fish and marine life are economically valuable. Hydroelectricity is also largely undeveloped and underexploited.

ECONOMY

Guangzhou is a Free Trade Zone, which extends favorable policies and flexible management systems to foreign investors. Goods are exempt from import and export taxes. Most foreign investment projects are in the high-tech manufacturing sector (*Guangdong Economic and Business Newsletter*, March 3, 1997). There are also 3 Special Economic Zones with policies and incentives favorable to overseas investors.

Industry:
- Light industry output value is twice that of heavy industry.
- Guangdong is famous for its papermaking, salt and sugar refining, and textiles.
- Strong industries: electronics, iron and steel works, machinery, chemicals, household appliances

Agriculture:
- Most of the labor force is engaged in agriculture.
- Agriculture is quite modern. Dams, dikes, electric power irrigation, and drainage projects have improved agricultural conditions.
- Major grain crops: rice, sweet potatoes (sown on 72 percent of the available farmland)
- Major cash crops: sugarcane, peanuts, fruits
- Commercial ocean fishing, timber, and livestock farming are all significant industries in Guangdong.

Infrastructure:
- Highest level of foreign capital: U.S.$10.6 billion
- Most of the freight traffic is done via highways.
- Water is also an important means of transport.
- Guangdong is well developed and technologically advanced because of its large cities, special economic zones, and contact with other countries through trade and immigration.
- 48,000 km of its 84,000 km of roads are either unpaved or in poor condition.
- The standard of living is very high compared to other parts of China.

Tourism:
- Guangzhou: an important economic and cultural city, with a history of over 2,800 years
- Notable sights: White Cloud Hills, Conghua Hot Springs, Liuhua Lake, and the Seven-star Rocks
- As of 1995, there were 952 tourist hotels: 21 large, 335 medium, and 596 small.

BEST COPY AVAILABLE

resource card #5b

FUJIAN PROVINCE

Capital: Fuzhou
Population: 32.4 million
Density: 270 people per sq. km
Most people live in the coastal plains region or valleys.

Climate:
The climate is warm and humid, with abundant rainfall. Typhoons are common.

Topography:
95 percent of the land is either mountainous or hilly. Rivers, valleys, and coastal plains constitute only 5 percent. The topography is similar to a staircase descending from the northwest to the southeast (Zhou, p. 201). Fujian is on the coast of the South China Sea.

Resources:
Iron, copper, lead, and coal are all mined here. 40 percent of the land is covered by dense forests. Fujian's long coastline provides many natural harbors, as well as potential breeding and fishing grounds for aquaculture. Fujian also has enormous potential for hydroelectricity. There are 2 million hectares of grass slopes suited to the development of animal husbandry.

ECONOMY

Fujian is open to the outside world with its Special Economic Zone and other development zones. Preferential policies have attracted overseas investors whose funding has helped build up industry, small enterprises, infrastructure, and foreign exports.

Industry:
- The output value of industry is about 2 times higher than that of agriculture. Light industry is dominant.
- Major heavy industries: iron, steel, coal, chemical plants, power generation
- Major light industries: paper products, food products, electronic goods
- Important handicrafts: wood carvings, umbrellas

Agriculture:
- Most of the labor force is engaged in agriculture.
- Farmland is decreasing, yet crop yields are increasing because of mechanization, fertilizers, and overall improvements made in agriculture. 78 percent of farmland is irrigated.
- Major grain crop: rice (sown on 76 percent of the cultivated land)
- Major cash crops: sugarcane, tropical fruits
- Forestry is an important part of the economy.
- Livestock raised: pigs, cattle

Infrastructure:
- Very high level of foreign capital: U.S.$4.1 billion
- Infrastructural insufficiencies are apparent as development is placing strains on the overburdened transportation network and power supply.
- Air pollution in the cities is severe.
- Transportation: railways, domestic airlines, highways, inland waterways, sea transport
- About 29,000 km of its 46,000 km of roads are paved and in excellent or good condition.
- The standard of living is high compared to other parts of China.

Tourism:
- Gulangyu Island: a remnant of past European settlements, with charming colonial architecture
- Yongding: an area known for its bizarre "earth buildings" built by the Hakka minority group
- Chongwu: one of China's best preserved walled cities seldom visited by tourists
- As of 1995, there were 110 tourist hotels: 60 medium and 50 small.

resource card #5c

HONG KONG SPECIAL ADMINISTRATIVE REGION

Population: 6.3 million
Density: 5,860 people per sq. km

Almost the entire population lives in the urban area. There are vast uninhabited parts of Hong Kong in the New Territories and various islands.

Climate:

The tropical climate is characterized by warm, dry winters and hot, rainy summers. Typhoons are common during the summer and early fall.

Topography:

Hong Kong includes the island of Hong Kong itself, in addition to the Kowloon Peninsula, the New Territories on the mainland, and over 230 islands in the South China Sea. The land constitutes part of a partially submerged section of a mountain range that extends through nearby Guangdong province.

Resources:

The sea is an important resource for Hong Kong's fishing industry and trade.

ECONOMY

Hong Kong's market economy is built on international trade and service industries like finance, insurance, telecommunications, and tourism. Free trade policies, a favorable location, excellent harbor, and skilled workforce have helped it become a major port of trade ("Hong Kong," *Britannica Online*). The future of Hong Kong's economy is uncertain in light of its recent reversion back to Chinese rule.

Industry:

- Major industries: light manufacturing industries like textiles and clothing, telecommunications equipment, watches, office equipment, etc.
- Industry accounts for less than one-tenth of the gross domestic product.
- The construction industry is flourishing as a result of land reclamation for new factories and businesses and a government commitment to improve infrastructure ("Hong Kong," *Britannica Online*).

Agriculture:

- Hong Kong imports most of its food from the mainland.
- Agricultural enterprises are usually vegetable growing and pond fish farming, both very profitable.
- The fishing industry is well developed, given its obvious advantageous location in and near the sea.

Infrastructure:

- Hong Kong has one of the highest population densities in the world, but is still one of the world's most modern and prosperous cities.
- The government has undergone changes with the recent handover back to China in June of 1997.
- Telecommunications and transportation are modern and all roads are paved.
- Current projects: public housing improvements, a new international airport, new roads
- People are wealthy compared to other parts of China and even compared to the rest of the world.

Tourism:

- Tourism and other service industries are the main force behind the economy in Hong Kong, but tourism has decreased this year. Factors such as traffic congestion, pollution, rising hotel prices, fewer shopping bargains, and the recent government changeover may be to blame.
- There is little room to build more hotels.

resource card #5d

HAINAN PROVINCE

Capital: Haikou
Population: 7.2 million
Density: 211 people per sq. km

Climate:

Hainan has China's only distinctly tropical climate. It is warm all year and rains often. Wet and dry seasons are regular and typhoons are common.

Topography:

Hainan is an island in the South China Sea located directly off the coast of Guangdong and Guangxi Zhuang. The island is mountainous in the center with low-lying plains along the coast.

Resources:

Crystal, iron, phosphorus, bauxite, copper are found. Hainan's tropical rainforests abound in plant and animal life. The island also has rich aquatic resources, since it is surrounded by continental shelf fishing grounds. Currently, only 6 percent of the total fishing area is being used. There are also hundreds of miles of coastline that have natural salt deposits.

ECONOMY

Hainan was made a Special Economic Zone in 1988. Its new economic status attracted fortune seekers in great numbers and has transformed the island into a state of rapid development.

Industry:

- The output value of light industry is over 2 times higher than that of heavy industry.
- Major light industry: rubber and rubber products, food, electronic goods
- Heavy industry: iron mining, power generation

Agriculture:

- The output value of agriculture is slightly higher than that of industry. Most of the labor force is engaged in agriculture.
- Major grain product: rice (sown on 75 percent of cultivated land)
- Major cash crops: rubber, coconuts, tropical fruit, sugarcane, tea
- Hainan produces 70 percent of China's total rubber output.
- Hainan has a suitable climate, geography, and favorable conditions for both natural catching and artificial breeding of fish.

Infrastructure:

- High level of foreign capital: U.S.$1.2 billion
- Hainan's success as a Special Economic Zone has been slowed by its lack of a strong legal framework (Huus, p. 46). Foreign investors are scared off by the absence of any type of legal protection since laws are vague and enforcement is unreliable (Huus, p. 47).
- Most transportation on the island is done via highways. 12,000 km of its 15,000 km of roads are either unpaved or in poor condition.
- Railroads and rivers are used to a much lesser degree.
- There are four major ports used to transport freight to and from the mainland.
- The standard of living is relatively high compared to other parts of China.

Tourism:

- Hainan is a popular destination in China because of its beautiful beaches, sunshine, and lush greenery.
- Minority groups add historic and cultural interest.
- Only 27 of an estimated 123 tourist spots have been developed (Zhou, p. 347).
- As of 1995, there were 135 tourist hotels: 60 medium and 75 small.

resource card #6a

YUNNAN PROVINCE

Capital: Kunming
Population: 40 million
Density: 103 people per sq. km

Climate:
Year-round temperate weather with warm summers, cool winters, moderate rainfall, and rare frost.

Topography:
84 percent of land is mountainous, 16 percent plateaus, basins, and river valleys with 5 major rivers. The south and southeast are basins and valleys while the rest of the province is very mountainous.

Resources:
Over 130 mineral ores including iron, copper, lead, tin, coal, and oil are found in Yunnan. There are also rivers with hydropower potential.

ECONOMY

Yunnan has always been somewhat economically isolated because of its location, large minority population, and its often inhospitable terrain.

Industry:

- The output value of industry is about 1.5 times higher than that of agriculture. Heavy industry is dominant by a slight margin.
- The mining industry is the most important industry with its rich deposits of copper, coal, marble, and other materials.
- Other important industries: machine building, optical and chemical industries

Agriculture:

- Most of the labor force is engaged in agriculture.
- Major grain crops: rice, corn, wheat
- Major cash crops: sugarcane, peanuts, fruit, tea, tobacco, coffee, rubber
- Less than half of the cultivated land is irrigated.
- The amount of farmland is decreasing due to new construction.
- Yunnan has favorable conditions for livestock breeding.

Infrastructure:

- Moderate level of foreign capital: U.S.$120 million
- As development continues, infrastructural insufficiencies will become more apparent as the transportation network and power supplies become overburdened.
- Horses are used for transportation in the mountains.
- Hydropower is the main source of power in Yunnan and stations are distributed over 90 percent of the province.
- There are 1,044 km of navigable waterways.
- Only about half of 68,000 km of roads are paved and in good condition.
- The standard of living is relatively low compared to other parts of China.

Tourism:

- Kunming: the capital city with abundant scenic, cultural, and historic sites
- Famous spots for beauty and historical significance: Dianchi and Erhai lakes, the Lunan Stone Forest, the three pagodas of Dali, and the Diancang Mountains
- As of 1995, there were 138 tourist hotels: 1 large, 52 medium, and 85 small.

resource card #6b

GUIZHOU PROVINCE

Capital: Guiyang
Population: 35.1 million
Density: 206 people per sq. km

Climate:
Warm summers, cool winters with frequent long spells of wet weather. Subject to droughts, hailstorms, floods, low temperatures, continual drizzle.

Topography:
87 percent covered by mountains and highlands, 10 percent by hilly areas, and 3 percent by small basins. Eight major rivers flow through Guizhou.

Resources:
Among the many minerals found are: coal, phosphorus, mercury, aluminum. Its main rivers all flow too swiftly to be suitable for navigation, but they abound in hydropower potential.

ECONOMY

Industry:
- The output value of industry is slightly higher than that of agriculture.
- Heavy industry is slightly more prevalent than light industry and is dominated by mercury, phosphorus, and coal mining.
- Light industries: silk and textiles, papermaking, leather processing, food products
- Numerous handicraft industries of batik cloth and bamboo flute making are being revived.

Agriculture:
- Most of the labor force is engaged in agriculture.
- 11 percent of the land is cultivated, much of which is in the form of terraced fields in the mountains and hills.
- Major food crops: rice, potatoes
- Major cash crops: tobacco, rapeseed
- Guizhou has rich forest resources and an important timber industry.
- Livestock raised: cattle, pigs
- The undeveloped evergreen hills are an ideal environment in which to raise livestock.
- Production conditions have been improving steadily and about one-third of the farmland is irrigated.

Infrastructure:
- Low level of foreign capital: U.S.$90 million
- Its mountainous terrain and inland location are strong deterrents for foreign investors.
- Infrastructural insufficiencies will become more apparent in the future as development places strains on the overburdened transportation network and power supply.
- Guizhou has sufficient railways and highways. Most freight transport is done via highways.
- About 27,000 km of the 32,000 km of roads are paved and in good condition.
- The standard of living is relatively low compared to other parts of China.

Tourism:
- Guizhou has fantastic scenery, with the numerous limestone caverns, crystal clear mountain lakes, and the Huangguoshu Waterfalls.
- As of 1995, there were 38 hotels: 1 large, 14 medium, and 23 small.

© SPICE

GUANGXI ZHUANG AUTONOMOUS REGION

Capital: Nanning
Population: 45.4 million
Density: 197 people per sq. km

Climate:
The temperatures vary based on altitude, but generally summers are hot and rainy and winters are dry and relatively warm.

Topography:
Guangxi Zhuang is surrounded by mountains and hills and is in the shape of a large basin. The Zhujiang River System includes three large rivers, which comprise the major waterways of the province. A small portion of the region lies on the coast of the South China Sea.

Resources:
Guangxi Zhuang has abundant plant life and timber forests, as well as a few rare ancient plants. The province has 96 kinds of known minerals and is important for its reserves of tin, antimony, zinc, aluminum, and lead. The ocean is a large natural resource, providing salt, seafood, and coastal access. There are also vast areas of undeveloped land suitable for use. The rivers that descend from the mountains have great potential for hydropower.

ECONOMY

Industry:
- The output value of industry is slightly higher than that of agriculture. Light industry is dominant by a small margin.
- Guangxi now has a well developed and well balanced industrial system.
- Sugar refining is the largest of the light industries.
- Traditional handicrafts are also an important part of the regional economy.
- Important heavy industries: tin, tungsten, and coal mining; iron and steel works; power generation; and machine building

Agriculture:
- Most of the labor force is engaged in agriculture.
- Major food crops: rice, maize, sweet potatoes
- Major cash crops: sugarcane, peanuts, tropical fruits, coffee
- Extensive forests yield pine resin, shellac, and mushrooms.
- Livestock raised: pigs, cattle
- Guangxi's coastal location offers prime fishing and artificial breeding grounds for seafood and pearls.

Infrastructure:
- Moderate level of foreign capital: U.S.$708 million
- Infrastructural insufficiencies will quickly become apparent as development begins to place strains on the transportation network and power supply.
- As of the end of 1995, Guangxi had the lowest number of railways in operation. The majority of freight transport is done via highways.
- About half of the 41,000 km of roads in Guangxi are paved and in good condition.
- Guangxi has an extensive network of navigable inland waterways which reach nearly 70 percent of all counties and cities. Sea transport is relatively new.

Tourism:
- Guilin: the world famous region on the Li Rive known for its exotic limestone pinnacles that jut up from the river, subterranean rivers, and spectacular caves
- Yangshuo: another town with the same scenery as Guilin, only less crowded and less touristy
- Yiling Cave: a popular tourist destination for its spectacular cave formations
- As of 1995, there were 95 tourist hotels: 1 large, 62 medium, and 32 small.

BEST COPY AVAILABLE

SICHUAN PROVINCE

Capital: Chengdu
Population: 83 million
Density: 155 people per sq. km

The population is distributed very unevenly: 95 percent of the people live in the basin and only 5 percent live on the plateau.

Climate:

The basin area has hot, moist summers and warm, moist winters. The western plateau region is cold and dry, with a long winter, but no summer. (Zhou, p. 352).

Topography:

Mountains and plateaus make up most of the western half of the province and a large basin makes up most of the eastern half. There are over 1,300 rivers that flow through Sichuan.

Resources:

Fast-flowing mountain rivers are rich in hydropower potential. Sichuan has the second largest natural gas deposits in China. Coal, iron, asbestos, and marble are in large supply. Sichuan has dense forests with a large timber supply.

ECONOMY

Chongqing became its own municipality in March of 1997. Therefore, some of the facts and figures below are combined for Sichuan and Chongqing since the most recent statistics are from 1995-1996.

Industry:

- The output value of industry is more than agriculture.
- Heavy industry: machinery, mining, energy production
- Sichuan produces the second highest hydroelectric output in the country.
- Light industry: textiles, food, handicrafts

Agriculture:

- Agriculture is the main economic activity for most Sichuan inhabitants. The land is fertile and growing conditions are ideal for growing grain.
- Major grain crops: rice, wheat, potatoes, maize (sown on 90 percent of the cultivated land)
- Major cash crops: rapeseed, tea, sugarcane, cotton
- Technology has increased the productivity, and mechanization has made farming more efficient.
- Major export items are: pigs, pig products, wool
- Sichuan has rich forest and bamboo resources.
- Temperate weather in the basin area provides good conditions for fish breeding, most of which takes place in the hilly areas of the basin.

Infrastructure:

- Moderate level of foreign capital: U.S.$620 million. (This figure is likely to be much different now.)
- Infrastructural insufficiencies are becoming more apparent as development begins to place strains on the overburdened transportation network and power supply.
- Transport routes: air, railways, highways, waterways
- Most freight transport is done via highways.
- There are about 101,000 km of roads. About 68,000 km of these are paved and in good condition.

Tourism:

- Chengdu: an ancient city full of historical treasures
- Cruises on the Yangzi River to see the beautiful Three Gorges section. (Completion of the Three Gorges Dam may ruin this tourist industry.)
- Glacial lakes offer beautiful scenery. Some areas can be developed into desirable mountaineering destinations for adventurous tourists.
- As of 1995, there were 148 tourist hotels: 1 large, 85 medium, and 62 small.

CHONGQING MUNICIPALITY

Population: 30.2 million
Density: 366 people per sq. km

Climate:
Summers are extremely hot and it has is known as one of China's "three furnaces" (Taylor et al., p. 825). Winters are mild.

Topography:
Chongqing sits at the top of steep hills that overlook the junction of the Yangzi and Jialing rivers (Taylor et al., p. 825). The city is very hilly.

Resources:
Insignificant

ECONOMY

Chongqing officially became a municipality in March of 1997, but has long been the industrial and commercial center of the Upper Yangzi River area. Incentives have been created to draw investors.

Industry:
- Industry is the main economic activity.
- Major heavy industries: iron and steel processing, machine building, energy production, automobile manufacturing, construction
- Major light industries: cotton and silk production, papermaking, food processing, handicrafts

Agriculture:
- The surrounding province of Sichuan provides much of Chongqing's agricultural needs.

Infrastructure:
- Construction is occurring at a frenzied pace to keep up with the booming economy.
- Severe air pollution causes abnormally high rates of death and respiratory disease for city dwellers
- Factories spew pollutants that create acid rain
- Sanitation facilities are overtaxed.
- Unemployment is high. Peasants from the countryside are flocking to the city in search of jobs. Chongqing will soon have to absorb the impact of about 1 million people who will be displaced upon completion of the Three Gorges Dam downstream.
- City transportation is limited by hills too steep for bicycles. Existing modes of city transport are crowded.
- A new airport and a bus terminal have been built.
- Trains, boats, and roads provide a complete network of transportation.
- There are 101,000 km of roads in Sichuan and Chongqing combined. 68,000 km of these are paved in good condition.
- Foreign capital is most likely high.
- The standard of living is high compared to other parts of China.

Tourism:
- Chongqing was the wartime capital of the anti-Communist Kuomintang.
- Boat cruises down the Yangzi River start here, but the future of this tourist industry is in question because the scenery will be ruined when the dam is completed downstream.
- As of 1995 there were 148 hotels in both Sichuan and Chongqing: 1 large, 85 medium, and 62 small.

resource card #8a

TIBET AUTONOMOUS REGION

Capital: Lhasa
Population: 2.4 million
Density: 2 people per sq. km

The population is concentrated in the valleys of the eastern part of the plateau.

Climate:

The climate varies greatly because of the varied topography. Temperatures are extreme and winters are intensely cold with fierce winds. Monsoons sweep across the plains for days, creating dust, sand, and snowstorms.

Topography:

Tibet is often called "The Roof of the World" because of its average elevation of over 4,000 meters. Two-thirds of Tibet is covered by a mountainous plateau which rises about 5,000 meters above sea level. The entire region is extremely mountainous, with many of the world's highest peaks in the Himalaya range.

Resources:

With rivers, lakes, and underground waters, Tibet has over one-fourth of China's entire water power potential. Tibet has ample supplies of iron, copper, coal, and timber.

ECONOMY

Tibet's economy has undergone drastic changes in the last few decades. The Chinese government feels that they have modernized Tibet's backward economy. The Tibetans feel that the reforms have destroyed their culture, religion, and traditional economy, which relied on subsistence-level agriculture, nomadic animal herding, and overland trade with Nepal.

Industry:

- Recent efforts have been aimed at developing the mining industry.
- Major industrial output: electricity, coal, wool textiles, food products

Agriculture:

- Agricultural output value is over 4 times higher than industrial output value. Farming and animal husbandry form the backbone of the economy.
- Livestock raised: yaks and sheep on plateaus; oxen, mules, and pigs in valleys.
- Major grain crops: barley, wheat

Infrastructure:

- Its remote location and weak infrastructure are strong deterrents for foreign investors. Therefore, there was no recorded foreign investment in 1995.
- Major changes in infrastructure have taken place over the last 15 years.
- Roads, schools, hospitals, and an airport have been built in the last few decades. There are no railways.
- Most travel in the province is done by roads.
- Over 21,000 km of the 22,000 km of roads are either unpaved or in poor condition.
- As the tourist and mining industries become stronger, further developments will be made in transportation and communications.
- People here are quite poor compared to other parts of China.

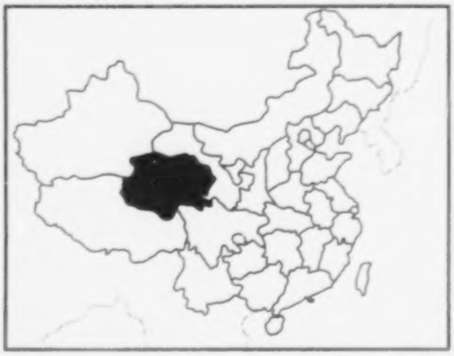
Tourism:

- Tibet offers exotic culture, history, and scenery.
- Potala Palace: once the seat of the Tibetan government and home of the Dalai Lama, their now-exiled political and religious leader.
- Lhasa and Shigatse: cities full of symbols of Tibetan culture and religion
- Himalayas: the world's highest mountains and the destination for expert mountaineering expeditions
- As of 1995 there were 23 tourist hotels in Tibet: 6 medium and 17 small.

©SPICE

resource card #8b

QINGHAI PROVINCE



Capital: Xining
Population: 4.8 million
Density: 6 people per sq. km
The population is concentrated around the agricultural area in the east.

Climate:
Qinghai has relatively dry weather with little rainfall. There are long periods of sunshine, frequent sand- and hailstorms, strong winds, and thunderstorms. Winters are extremely cold, summers are cool.

Topography:
Qinghai, as mountainous as Tibet, is part of what is commonly referred to as the Tibetan Plateau. The plateau and mountains make up two-thirds of the land, with the rest being basins and valleys.

Resources:
Qinghai has enormous salt deposits and asbestos. There are rich wildlife resources and abundant grasslands. Resources in the form of water, wind, and solar power are plentiful. There is also significant potential to develop more fish farms.

ECONOMY

Industry:
- Industrial output value is 2 times higher than agricultural output value.
- Industry is still in an early stage of development, but with Qinghai's abundant mineral resources, there is great potential.
- Major industrial products: power generation, crude oil, wool textiles
- New power stations, oilfields, and construction projects will boost the economy.

Agriculture:
- Most of the labor force is engaged in agriculture. Animal husbandry is a crucial part of the economy.
- Raising cattle, sheep, horses, yaks, and pigs is an integral part of the agricultural economy, with output even exceeding that of crop growing.
- Traditionally, herdsmen were nomadic.
- Pasturelands cover 95 percent of Qinghai.
- Major grain crops: wheat, barley
- Less than one-third of the land is irrigated, and mechanization is fairly low.

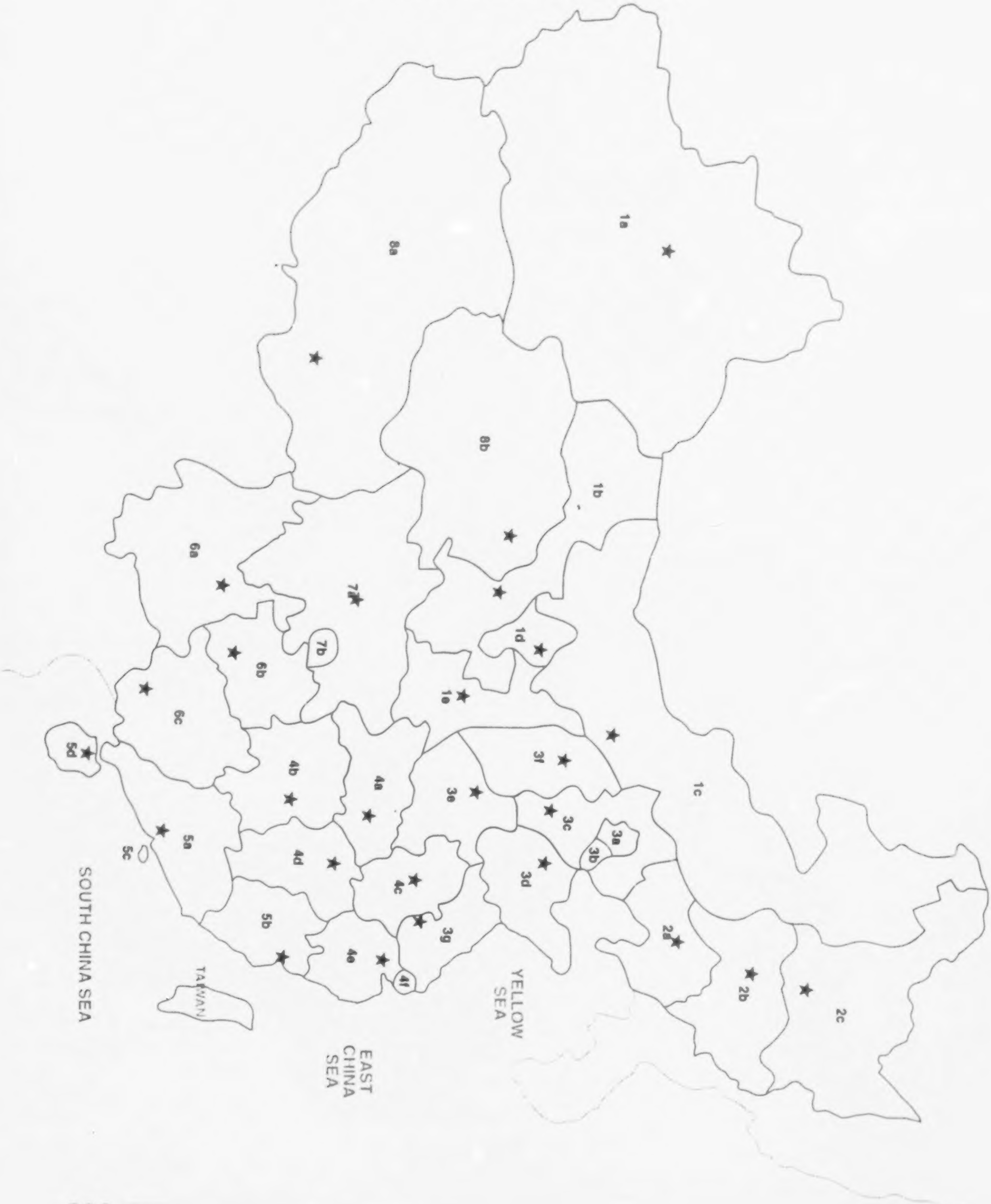
Infrastructure:
- Extremely low level of foreign capital: U.S.$2.4 million.
- Its remote location combined with a weak infrastructure are strong deterrents for foreign investors.
- Up until the 1980s, there were no railways, no air travel, and very few roads.
- There is now a railway connecting the major cities to provinces to the east.
- Highways are still the main route used for transportation, but nearly 13,000 km of the 17,000 km of roads are either unpaved or in poor condition.
- People here are relatively poor compared to other parts of China.

Tourism:
- Ta'er Monastery: birthplace of the founder of the Yellow Hat sect of Tibetan Buddhism whose leader is the Dalai Lama. The monastery is noted for its sculptures created out of yak butter.
- Qinghai Lake: the largest lake in China with beautiful scenery and a nesting ground for a variety of exotic birds.
- The mountains offer spectacular scenery and hiking opportunities for outdoors enthusiasts.
- As of 1995 there were only 10 hotels: 4 medium and 6 small.

BEST COPY AVAILABLE

map #1

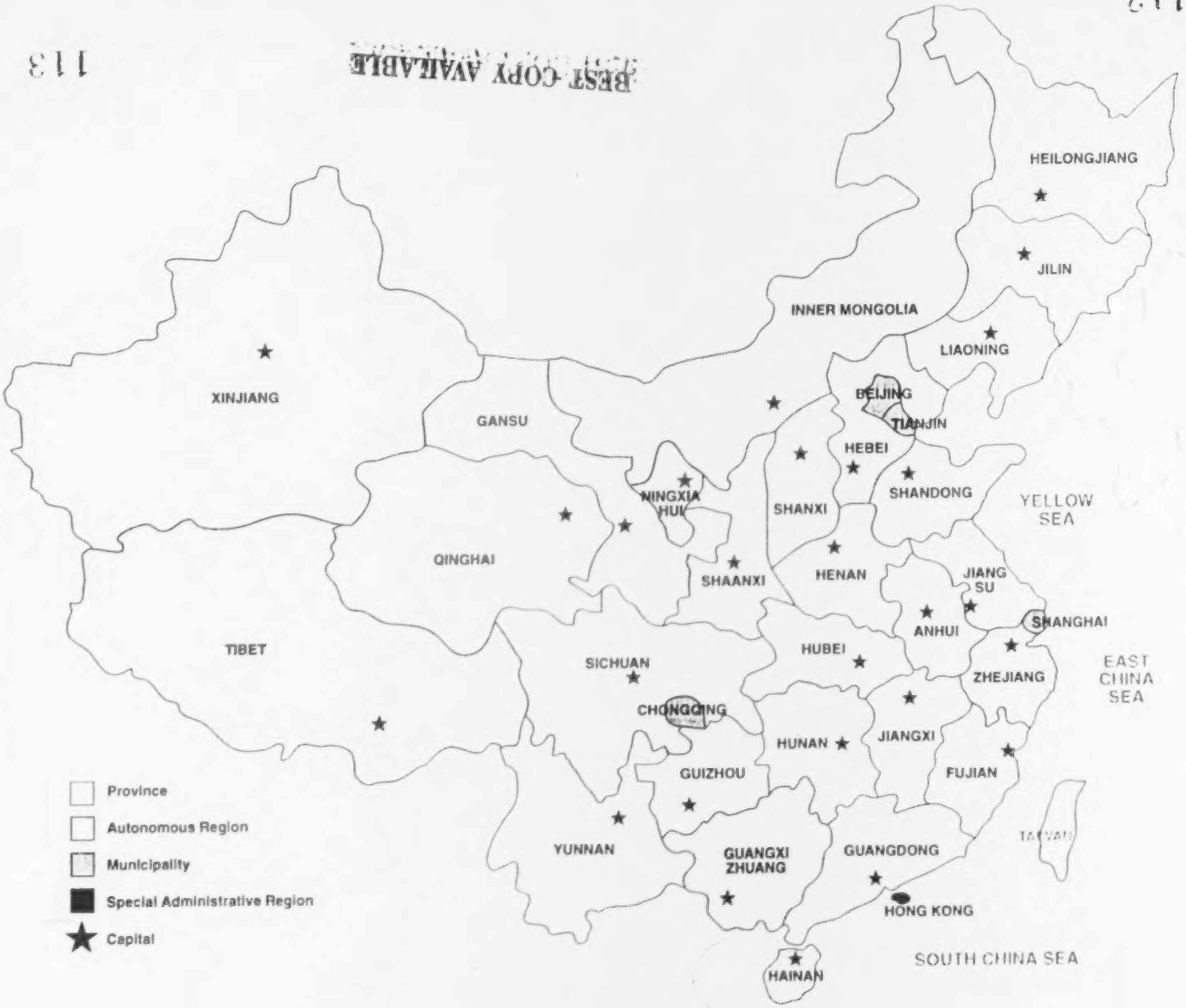
CUTOUT MAP OF CHINA


1a
8a
8b
1b
6a
7a
1d
7b
6b
1e
6c
5d
4b
4a
3e
3f
3c
3a
3b
1c
5a
5c
4d
4c
3d
3g
2a
5b
4e
4f
2b
2c
SOUTH CHINA SEA
TAIWAN
EAST CHINA SEA
YELLOW SEA

© SPICE

map #2

ADMINISTRATIVE MAP OF CHINA


HEILONGJIANG
JILIN
INNER MONGOLIA
LIAONING
XINJIANG
GANSU
BEIJING
TIANJIN
HEBEI
NINGXIA HUI
SHANXI
SHANDONG
YELLOW SEA
QINGHAI
SHAANXI
HENAN
JIANG SU
SHANGHAI
ANHUI
TIBET
SICHUAN
HUBEI
EAST CHINA SEA
ZHEJIANG
CHONGQING
HUNAN
JIANGXI
GUIZHOU
FUJIAN
YUNNAN
GUANGXI ZHUANG
GUANGDONG
TAIWAN
HONG KONG
HAINAN
SOUTH CHINA SEA
Province
Autonomous Region
Municipality
Special Administrative Region
Capital

BEST COPY AVAILABLE

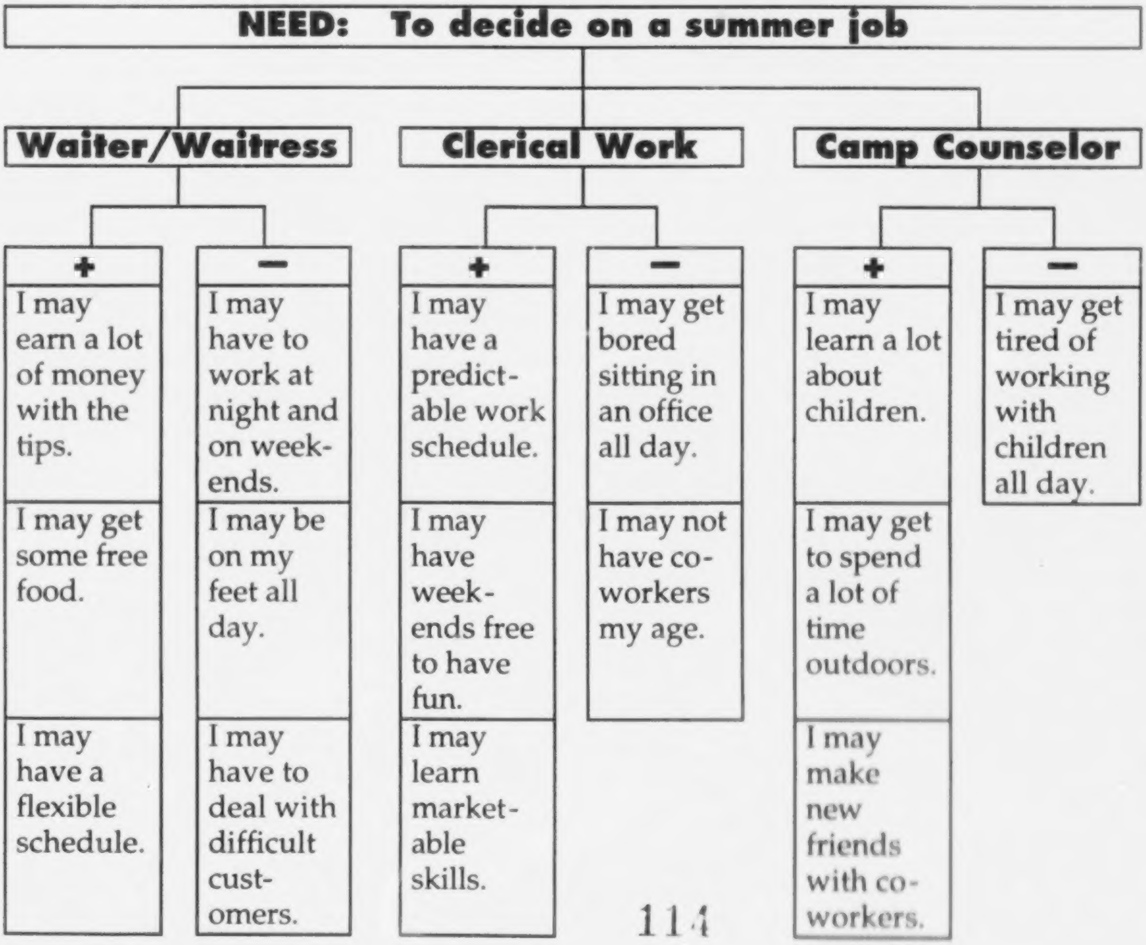
transparency #1

WHAT IS A DECISION MAKER'S FLOWCHART?

A decision maker's flowchart enables students to visually structure the decision making process. It identifies each step of this process (need, alternatives, consequences, and decision) and allows students to make a sound decision based on the most favorable alternatives and consequences of the decision.

A decision maker's flowchart encourages students to practice the following thinking skills:

brainstorming
generating alternatives
analyzing consequences
deciding


NEED: To decide on a summer job
Waiter/Waitress
Clerical Work
Camp Counselor
+
I may earn a lot of money with the tips.
I may get some free food.
I may have a flexible schedule.
−
I may have to work at night and on weekends.
I may be on my feet all day.
I may have to deal with difficult customers.
+
I may have a predictable work schedule.
I may have weekends free to have fun.
I may learn marketable skills.
−
I may get bored sitting in an office all day.
I may not have co-workers my age.
+
I may learn a lot about children.
I may get to spend a lot of time outdoors.
I may make new friends with co-workers.
−
I may get tired of working with children all day.

© SPICE

MAKING THE FLOWCHART

To help you make your final decision on which project to choose, you and your group members will set up a decision maker's flowchart on a large piece of paper.

The NEED will be to select a suitable project in whichever sector you have chosen.

The ALTERNATIVES will be the four preapproved projects listed for that particular sector on Activity Card #2.

Use the "Things to Consider" questions on Activity Card #2 as a guide to determine the positive and negative CONSEQUENCES of each of the four alternative projects for your sector.

Remember to think of a consequence as the result of a certain condition. To help you keep this in mind, try the following format as a general guide:

"Investment in this project may affect ________________
in a ______________way by ________________________."

Example: "Investment in this project may affect the environment in a negative way by generating more pollution."

activity card #1

CHOOSING A SECTOR FOR INVESTMENT

You are the governor of your province, municipality, autonomous region, or special administrative region. The central government has announced that each of the eight regions will receive an unspecified sum of money for economic development. Your task is to meet with the other governors in your region to discuss the economic conditions in each of your provinces. Together, you must choose one sector of your region's economy (industry, agriculture, infrastructure, tourism) that would benefit most from development. Benefits can be in terms of greater potential earning power or better economic balance.

Discuss the following facts and questions with your fellow governors. Have the group's recorder write the answers down. Evaluate the answers carefully, then make your decision.

Industry

- Do similarities exist in the industrial structure of each province?
- What is the balance of heavy versus light industry? Industry versus agriculture?
- Would you have enough people to employ in a new enterprise?
- Is your region in a desirable location for investors?
- Are there any special tax incentives offered by your region?
- What types of mineral resources are found in your region?
- Can your transport system handle additional freight?

Agriculture

- What types of crops are grown in the region?
- Are there any factors like weather and topography that affect crop growing?
- Does the region have enough agricultural land to warrant major development?
- What is the transport like in your region?
- Will this help reduce the need to import food?
- What is the current level of mechanization and irrigation in the area?
- Do any provinces in the region have potential for agricultural development?

Infrastructure

- Based on the fact that heavy industry, agricultural chemicals, and human waste are leading causes of pollution in China, what are the main causes of pollution in your region?
- Is pollution a problem you consider to be important?
- Most of China's transportation vehicles are old and unreliable.
- What are road conditions like in the region?

Tourism

- Does your region have many potential tourist attractions?
- Are there many existing tourist attractions?
- What is the transport like in the region?
- Will this affect the environment?

© SPICE

activity card #2

SECTOR	INVESTMENT PROJECT
INDUSTRY	Construction of 5 non-polluting water, wind, or solar power plants to provide enough electricity to replace 10 polluting coal-burning power plants. Each new plant will provide electricity for 2 million people.
	Purchase existing factories or processing plants (5 light industry or 2 heavy industry) below cost, retool them with modern technology to produce more output. Each factory will employ 1,000 people.
	Construction of a commercial office and retail complex that will accommodate over 100 new businesses.
	Conduct extensive prospecting expeditions to locate mineral and fuel deposits. Set up mines or extracting equipment near existing deposits and begin excavation.
AGRICULTURE	Invest in research to develop high-yield crop varieties for places with limiting factors such as rugged terrain, harsh weather, a short growing season, drought conditions, etc. After research is finished, the new crop seeds are to be distributed to all farms in the region.
	Build 10 large fish or shellfish farms or 10 small livestock farms, or any combination of the two. Choose your own preferred livestock to breed.
	Retool farmland in the region to increase efficiency and double output.
	Purchase equipment necessary to develop a timber industry around existing forest reserves or to plant timber forests in barren areas suitable for afforestation.
INFRA-STRUCTURE	Build 25,000 km of new roads or upgrade existing roads up to 50,000 km.
	Construction of 5 state-of-the-art pollution control facilities to process industrial waste, agricultural chemicals, contaminated water, and/or raw sewage. Each facility will be capable of handling waste generated by up to 50 million people.
	Construction of a new airport large enough to accommodate international airlines and service.
	Purchase new airplanes, trains, and buses to provide more reliable and safe passenger and freight transport in the region.
TOURISM	Construction of 3 Family Entertainment Centers, each with its own Disneyland-type theme park, miniature golf course, multi-screen movie theater, video arcade, food court, and casino.
	Construction of either one large luxury hotel, 5 medium mid-class hotels, or 10 small budget hotels. Hotels can be built anywhere in the region.
	Develop wild rivers, rugged mountains, vast deserts, etc. into desirable destinations for adventure-seeking travelers. Use the funds to establish profitable enterprises that organize river-rafting, mountain-climbing, and wilderness-trekking expeditions.
	Develop new tourist attractions out of historic or scenic spots, *or* clean up and restore existing spots that have been deteriorating from neglect and time.

Things to Consider

- *How could the project affect freight and passenger transport?*
- *How could it affect the environment?*
- *Could it displace people, farmland, or forests?*
- *How could it affect the tourist industry?*
- *How could it affect existing industry?*
- *Will the project place strains on existing infrastructure?*
- *Will it create new jobs? (short-term and long-term)*
- *Will it encourage foreign investment?*

activity card #3

THE PEOPLE'S REPUBLIC OF CHINA INVESTMENT CONTRACT

We, the joint governors of the ________________________ region of the People's Republic of China, have decided to use the government funding to further develop the ___________________ sector of our joint economies. We have reviewed all pertinent economic factors of our individual provinces, municipalities, autonomous regions, and special administrative region to make this decision.

Of the four preapproved projects listed for this sector, we chose:

The specific plans for our project are as follows:

We believe the project will be economically advantageous for our region for the following reasons:

Signed:	Governor of:
__________________________	______________________________
__________________________	______________________________
__________________________	______________________________
__________________________	______________________________
__________________________	______________________________
__________________________	______________________________
__________________________	______________________________

© SPICE

APPENDIX

REFERENCES

General

Banaszak, Ronald A., and Dennis C. Brennan. (1983). *Teaching Economics: Content and Strategies.* Menlo Park, CA: Addison-Wesley Publishing Company.

Introduction

Helmer, Olaf. (1983). *Looking Forward: A Guide to Futures Research.* Beverly Hills, CA: Sage Publications.

Joseph, Dr. William A. (1987). *Global Studies: China.* 2nd edition. Guilford, CT: Dushkin Publishing Group, Inc.

Kauffman, Draper L., Jr. (1976). *Futurism and Future Studies.* Washington D.C.: National Education Association.

Slaughter, Richard, ed. (1996). *New Thinking for a New Millennium.* New York: Routledge.

"What Time Is It?: You and the Future World." (1981). In, *Teaching Global Awareness with Simulations and Games*, Lamy et al. Denver, CO: Center for Teaching International Relations.

Lesson One

Bell, Wendell. (1996). "What Do We Mean by Futures Studies?" In *New Thinking for a New Millennium*, Richard Slaughter, ed. New York: Routledge.

Bellanca, James. (1990). *The Cooperative Think Tank: Graphic Organizers to Teach Thinking in the Cooperative Classroom*. Palatine, IL: IRI/Skylight Training and Publishing, Inc.

Bellanca, James. (1992). *The Cooperative Think Tank II: Graphic Organizers to Teach Thinking in the Cooperative Classroom*. Palatine, IL: IRI/Skylight Training and Publishing, Inc.

McCumsey, Janet. (1984). *Exploring the Future: Basic Skills and Activities for the Futuristic Thinker*. Carthage, IL: Good Apple, Incorporated.

Lesson Two

Avery, Mark. "Beijing Bloodbath." *Newsweek*, June 12, 1989, p. 24.

Bell, Wendell. (1997). *Foundations of Futures Studies: Human Science for a New Era.* New Brunswick, NJ: Transaction Publishers.

Black, George and Robin Munro. (1993). *Black Hands of Beijing: Lives of Defiance in China's Democracy Movement.* New York: John Wiley & Sons, Inc.

China Journal, 1889-1900. [with the letters and diaries of Eva Jane Price and her family]. (1989). New York: Charles Scribner's Sons.

Chow, Tse-tsung. (1960). *The May Fourth Movement: Intellectual Revolution in Modern China*. Stanford, CA: Stanford University Press.

Chua-Eoan, Howard G., and Jesse Birnbaum. "Despair and Death in a Beijing Square." *Time*, vol. 133, no. 24, June 12, 1989, p. 24.

"Counter-Revolutionary Riot Quelled." *Beijing Review*, June 12-25, 1989.

references

Editorial. "It is Necessary to Take a Clear-cut Stand Against Disturbances." *People's Daily*, April 26, 1989. Beijing, China.

Editorial Board. (1990). *The Truth About the Beijing Turmoil.* Beijing: Beijing Publishing House.

Elleman, Bruce. (1997). *Diplomacy and Deception: the Secret History of Sino-Soviet Diplomatic Relations.* Armonk, NY: M. E. Sharpe.

"Engaging the Dragon—MFN Status for China." *San Francisco Chronicle*, May 21, 1997, p. A18.

The Face of China: As Seen by Photographers and Travelers, 1860-1912. (1978). New York: Aperture, Inc.

Fairbank, John King. (1992). *China: A New History.* Cambridge, MA: Harvard University Press.

Feng, Jicai. (1991). *Voices from the Whirlwind: An Oral History of the Chinese Cultural Revolution.* New York: Random House, Inc.

Feng, Jicai. (1996). *Ten Years of Madness: Oral Histories of China's Cultural Revolution.* 1st edition. San Francisco, CA: China Books and Periodicals.

Franke, Wolfgang. (1970). *A Century of Chinese Revolution, 1851-1949.* New York: Harper and Row.

Giles, Lancelot. (1970). *The Siege of the Peking Legations: A Diary.* Australia: University of Western Australia Press.

"Hu Yaobang." *Britannica Online.* <http://www.eb.com:180/cgi-bin/g?DocF=micro/279/84.html>

Hunter, Deirdre and Neale. (1971). *We the Chinese: Voices from China.* New York: Praeger Publishers.

"Li Peng." *Britannica Online.* <http://www.eb.com:180/cgi-bin/g?DocF=micro/347/68.html>

Lo, Ruth Earnshaw, and Katherine S. Kinderman. (1980). *In the Eye of the Typhoon.* New York, NY: Harcourt Brace Jovanovich.

Morgan, Phillip. "Blood is on the Square." <http://www.cnd.org:8006/June4th/song/>

Nathan, Andrew. "Chinese Democracy in 1989: Continuity and Change." *Problems of Communism.* Sept.-Oct. 1989.

The National Center for History in the Schools. (1992). *Lessons from History: Essential Understandings and Historical Perspectives Students Should Acquire.* Los Angeles: Regents, University of California.

Pruitt, Ida. [From the story told her by Ning Lao T'ai-t'ai]. (1967). *A Daughter of Han: The Autobiography of a Chinese Working Woman.* Stanford, CA: Stanford University Press.

Southerland, Daniel. "Troops Roll Through Beijing to Crush Protesters." *The Washington Post*, June 4, 1989, p. 1.

Spence, Jonathan D. (1981). *The Gate of Heavenly Peace: The Chinese and Their Revolution, 1895-1980.* New York: Penguin Books.

Spence, Jonathan D. (1990). *The Search for Modern China.* New York: W.W. Norton and Company.

"Statement Calls for 'Quelling the Riot.'" *China Daily*, June 6, 1989.

"Troops Ordered to Restore Order." *Beijing Review*, June 12-25, 1989.

"Uprising in China Crushed by Troops: Army Mows Down Hundreds." *San Francisco Examiner*, June 4, 1989, p. 1.

"Zhao Ziyang." *Britannica Online.* <http://www.eb.com:180/cgi-bin/g?DocF=micro/653/54.html>

Lesson Three

Bongaarts, John. (1994). *Population Policy Options in the Developing World.* New York: Population Council.

Brown, Lester, Hal Kane, and Ed Ayres. (1993). *Vital Signs 1993: The Trends That are Shaping Our Future.* New York: W.W. Norton & Co.

Food and Agriculture Organization of the United Nations. (1980 and 1992). *FAO Production Yearbook.* FAO Statistics Series. Rome: FAO.

Haas, John. (1980). *Future Studies in the K-12 Curriculum.* Boulder, CO: ERIC Clearinghouse for Social Studies/Social Science Education.

International Rice Research Institute. (1995). "IRRI Rice Facts." Manila, Philippines: IRRI.

Kauffman, Draper Jr. (1976). *Futurism and Future Studies.* Washington, D.C.: National Education Association.

Keyfiz, Nathan. (1990). "The Growing Human Population." In *Managing Planet Earth: Readings from Scientific American Magazine.* New York: W.H. Freeman & Co.

Livi-Bacci, Massimo. (1992). *A Concise History of World Population.* Cambridge, MA: Blackwell Publishers.

Population Reference Bureau, Inc. (1986). *Population in Perspective: Regional Views.* Washington, D.C.: Population Reference Bureau.

Steger, Will, and Jon Bowermaster. (1990). *Saving the Earth.* New York: Alfred A. Knopf.

Timmer, Peter, Walter Falcon, and Scott Pearson. (1983). *Food Policy Analysis.* Baltimore, MD: The Johns Hopkins University Press.

Lesson Four

"Acid Rain." *Britannica Online.* <http://www.eb.com:180/cgi-bin/g?DocF=micro/3/62.html>

Capannelli, Elisabetta, and Omkar L. Shrestha. 1993. *Environmental Challenges in the People's Republic of China and Scope for Bank Assistance.* Manila, Philippines: Asian Development Bank.

references

Editorial Board. (1995). *China Environment Yearbook*. Beijing.

Farnham, Alan. "China: Coming up for Air?" *Fortune*, vol. 128, no. 4, August 23, 1993, online.

Gable. "20th Century Growth Industry, Doomsday Clocks (cartoon)." Toronto: Cartoonists & Writers Syndicate.

Gao, Greg, and Guochen Wan. "Clear Waters, Blue Skies: Strategies for China." *China News Digest*, Sept. 19, 1997, online.

Garver, John W. (1993). *Foreign Relations of the People's Republic of China*. Englewood Cliffs, NJ: Prentice-Hall.

He, Bochuan. (1991). *China on the Edge: The Crisis of Ecology and Development*. San Francisco, CA: China Books and Periodicals.

Heng. "China's Economic Program, Full Speed! (cartoon)" Singapore: Cartoonists & Writers Syndicate.

Masaki, Hisane. "Environment: Can Japan Make a Neighbor Clean Up?" *World Press Review*, vol. 43, no. 3, March 1996, online. (reprinted from *Japan Times Weekly*, July 17, 1995).

Mastel, Greg. (1997). *The Rise of the Chinese Economy: The Middle Kingdom Emerges*. Armonk, NY: M.E. Sharpe.

McCumsey, Janet. (1984). *Exploring the Future: Basic Skills and Activities for the Futuristic Thinker*. Carthage, IL: Good Apple, Incorporated.

Qu Geping and Woyen Lee, eds. (1984). *Managing the Environment in China*. Dublin, Ireland: Tycooly International Publishing, Ltd.

Ross, Lester. (1988). *Environmental Policy in China*. Bloomington: Indiana University Press.

Smil, Vaclav. (1993). *China's Environmental Crisis: An Inquiry into the Limits of National Development*. Armonk, NY: M.E. Sharpe.

World Development Indicators. (1997). World Bank.

Zimmerman, Tim, Susan V. Lawrence, and Brian Palmer. "China Takes a Deep Breath." *U.S. News and World Report*, vol. 121, no. 10, Sept. 9, 1996, online.

Lesson Five

Beijing Investment Guide 1996. Xindeco Business Information Company.
<http://www.ChinaVista.com/beijing/invest/econ-overview.html#TONE>
<http://www.ChinaVista.com/beijing/invest/encouraged-inv.html>

Breslin, Shaun. (1989). "Shanxi: China's Powerhouse." In *China's Regional Development*, edited by David S.D. Goodman. London: The Royal Institute for International Affairs.

Chen, Dongsheng. (1990). "The Regional Economy." In *The Chinese Economy and Its Future*, edited by Peter Nolan and Dong Fureng. Cambridge, England: Polity Press.

Cheng, Elizabeth. "No Treasure Island." *Far Eastern Economic Review*, Vol. 144, No. 20, May 18, 1989. pp. 58-59.

"China." *Britannica Online.*
<http://www.eb.com:180>

"China: SOUTH CHINA: Kwangtung." *Britannica Online.*
<http://www.eb.com:180/cgi-bin/g?DocF=macro/5001/25/354.html>

"Economic Profile: Major Indexes of Chongqing." Chongqing Statistics Bureau, May 1997.
<http://www.china-chongqing.com/ep.html>

Ferdinand, Peter. (1989). "Shandong: An Atypical Coastal Province?" In *China's Regional Development,* edited by David S.D. Goodman. London: The Royal Institute for International Affairs.

Garver, John. (1993). *Foreign Relations of the People's Republic of China.* Englewood Cliffs, NJ: Prentice-Hall.

Gilley, Bruce. "Off the Beaten Track: China's Interior Offers Joy to Some Foreign Investors." *Far Eastern Economic Review,* vol. 159, no. 16, April 18, 1996, p. 84.

Guangdong Economic and Business Newsletter, March 3, 1997.

"High Stakes." *Far Eastern Economic Review*, vol. 158, no. 25, June 22, 1995, pp. 76-80.

"Hong Kong." *Britannica Online.*
<http://www.eb.com:180/cgi-bin/g?DocF=micro/276/4.html>

Howard, Maurice. (1989). "Transport and Communications." In *China's Regional Development,* edited by David S.D. Goodman. London: The Royal Institute for International Affairs.

Huus, Kari. "Come as You Are." *Far Eastern Economic Review,* vol. 157, no. 22, June 2, 1994, pp. 50-52.

Huus, Kari. "One Province, No System." *Far Eastern Economic Review*, vol. 157 no.22, June 2, 1994, pp. 46-48.

Ledic, Michèle. (1989). "The Energy Sector." from *China's Regional Development,* edited by David S.D. Goodman. London: The Royal Institute for International Affairs.

Mastel, Greg. (1997). *The Rise of the Chinese Economy: The Middle Kingdom Emerges.* Armonk, NY: M.E. Sharpe.

Quiers, Pierre-Julien. "The Last Caravan." *Far Eastern Economic Review,* vol. 159, no. 16, April 18, 1996, pp. 66-68.

"Sectors Favorable for Overseas Investment in the City." *Beijing Investment Guide, 1996*. Xindeco Business Information Company, 1997.
<http://www.chinavista.com/beijing/invest/encouraged-inv.html>

State Statistical Bureau, People's Republic of China. (1996). *China Statistical Yearbook:.* Beijing: China Statistical Publishing House.

"Statistics: China." *Britannica Online.*
<http://www.eb.com:180/cgi-bin/g?DocF=wld/K10365.html>

references

"Statistics: Hong Kong." *Britannica Online*.
<http://www.eb.com:180/cgi-bin/g?DocF=wld/K10175.html>

Sun, Jingzhi. (1988). *The Economic Geography of China*. Oxford, England: Oxford University Press.

Taylor, Chris, Robert Storey, Nicko Goncharoff, Michael Buckley, Clem Lindenmayer, and Alan Samagalski. (1996). *China: a Lonely Planet Travel Survival Kit*. 5th edition. Singapore: SNP Printing Pte. Ltd.

"U.S. Export-Import Bank Adds Division to Support Infrastructure Development." *U.S.-China Business Magazine*, Spring 1996, pp. 56-57.

Zhou, Shun-wu. (1992). *China Provincial Geography*. Beijing, China: Foreign Languages Press.

© SPICE